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ABSTRACT

A competency based special education teacher training and certification program for regular teachers seeking special education certificates was developed in a Kentucky program. Teachers were certified contingent upon the following factors: (1) criterion performance on teacher-child interaction scales, (2) student criterion performance on on-task behavior during work periods and (3) students' academic performances represented by 30-day work samples from a randomly drawn sample. Sixteen participants in the summer certification program were presented with a contingency managed methods course and the opportunity to observe a contingency managed demonstration class. Ss were observed teaching to determine the extent to which they utilized newly taught skills. Appendixes include module outlines (with such modules as writing behavioral objectives and task analysis), the recording form and coding system for recording child social behavior, the teacher behavior recording form and code, and the in-field evaluation form. Also included is an article by J. Tawney entitled "Behavior Modification is Nct. . ." (DB)

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PRACTICE WHAT YOU PREACH: A PROJECT TO DEVELOP A
CONTINGENCY-MANAGED "METHODS" COURSE, AND TO
MEASURE THE EFFECTS OF THIS COURSE BY IN-FIELD EVALUATION

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A project of this duration employs many persons who make unique contributions. Karen Hammonds served as the first demonstration teacher and survived the implementation of the first summer's program. Joann Nelson and Rose Ray assisted as data collectors in the classroom. Lee Welsh served as a proctor for two summers. Dorothy Ward proctored the first summer, then taught the demonstration class during the second summer. Deborah Miller Entwistle conducted the first in-field observations that set the stage for the competency evaluation system. Pamela Hough collected data during the second summer of the project, and Louis J. Palsgrove collected in-field data on perspective teachers.

Others who served as proctors included Elaine Knowlton, Kay Lanham, and Jennifer Adkins. Carole J. Kruse served as proctor, then as an in-field evaluator. She was joined by Dorothy Kelly. Their efforts carried the project from the observation to the evaluation phase.

The late Dan Arnold, Associate Dean for teacher certification and Dr. Sidney Simandel, State Department of Education, facilitated the project by approving the temporary certification which made the competency based evaluation system possible.

Thanks are due to the superintendents who enabled us to conduct the project in their systems, and to other system administrators who worked with project staff. A special note of thanks is due to the teachers, who permitted this intrusion into their professional lives, and who agreed to allow their certification to be based on the rigorous criterion described in the manuscript. They are to be admired for their willingness to undergo prolonged observation and interaction with the project staff.

Finally, Judy Pate began and Mary Shepherd Kerr completed the secretarial tasks related to the completion of this project.

Abstract

A procedure was developed, as an outgrowth of a project to develop an alternative instructional program for certification of general education teachers seeking out additional special education certificates, to certify teachers contingent upon (a) criterion performance on teacher-child interaction scales (b) student criterion performance on on-task behavior during work periods and (c) students academic performances represented by thirty day work samples from a randomly drawn sample.

Participants in a summer certification program were presented with a contingency managed methods course, and the opportunity to observe contingency managed demonstration class during an earlier phase of this project. There, they were observed to determine the extent to which they utilized newly taught skills. From this process, a competency based evaluation system was constructed. The results of evaluation of two groups of teachers are reported. The relationship of this project to general issues in competency based teacher education is described, and implications of this approach are stated.

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CHAPTER 1

Statement of Purpose

This project was initiated as a one year project whose purpose was to implement a contingency-managed methods course and a contingency-managed demonstration class of "educable retarded" children in a summer certification program for teachers of the retarded, to increase the probability that techniques taught during a summer session are implemented by classroom teachers during the following academic year.

The project was continued through three subsequent academic years and engaged in activities whose purposes were to develop an alternative model for retraining teachers, and to develop prototype systems and procedures to conduct competency based teacher evaluations.

Problem Statement

This project addressed itself to the problems inherent in traditional special education summer recertification programs. As an emerging field, special education has typically been called on to provide large numbers of certified teachers to meet needs which emerge rapidly, without requisite lead time for extensive staff development. This occurred post-World War II, when federal support was poured into the development of programs for the educable retarded; in the mid-sixties when trainable retarded children were brought under the umbrella of public education services; and is now occurring again as the right to public education is being established for children with severe and multiple handicapping conditions. In each instance, institutions of higher education have been presented with a supply and demand problem, and an inherent moral dilemma- whether to encourage slow development of special education services with highly trained personnel or to meet the presumed need immediately, with teachers who have little initial experience but who are retrained while they teach a new population.

Twice, public sentiment, and the lure of federal support have led to the development of summer recertification programs. It is too soon to tell if programs for the severely handicapped will fall into the traditional pattern.

Summer recertification programs are based on false assumptions and contain structural defects. Because teachers (students) are already certified, experience and competence are assumed. In fact, no models for pre-program entry evaluation exist. Further, particularly during the early development of programs for the educable retarded, teachers were as likely to be encouraged to go into special education to get them out of regular classrooms as they

were to be recruited on the basis of their excellence in the regular classroom. Consequently, recertification programs functioned as pass through systems for persons of variable competence. Similarly, it was assumed that certification and competence are synonymous. This assumption is being sorely tested as developing competency based teacher education programs clarify the differences between demonstrated competencies and credit hour based certification programs.

The major structural problems in summer recertification programs center on the content, orientation and the lack of adequate practicum opportunities. Typically a large number of teachers might be enrolled in a standard "Introduction", "Characteristics" and "Methods" sequence during the first summer. During the final summer, that same group would be scheduled into practicum or student teaching situations, competing for teaching time with a large number of peers in a small demonstration class. These circumstances precluded extensive observation and remediation of teacher behavior, a not necessarily unsatisfactory situation for those who assumed the teachers to be competent when they entered the recertification program. When inadequate teacher performance was identified, the structure and time limitations of the program generally precluded sufficient remediation to guarantee that newly learned behaviors would be practised in the field. Lacking strategies to evaluate the extent to which these behaviors were maintained, teachers were certified on a limited information base. That is, this ability to work effectively with students was inferred, not documented extensively. While there were undoubtedly variations in program quality throughout the country, the basic constraints of the summer recertification strategy were common to the majority of programs.

The impetus for this project came when the project director, after five years experience as a demonstration teacher in a traditional program, encountered the same conditions in a different locale after a four year absence from teacher training environments. Observations of student teaching placements during the 1970 summer session led to an attempt to calculate teacher: student and teacher: available time ratios. These data, and some new perspectives on the nature of teacher competence, led to the development of this project. Newly emerging technologies in teacher observation and applied behavior analysis provided the framework for an alternative program conducted outside the time boundaries of the summer session.

Components of the Intervention Strategy

Contingency managed public school environments

The development of contingency managed classroom environments is an outgrowth of the application of the principles of operant conditioning to child behavior. Influenced by the work of Skinner (1953; 1954), reports of behavior modification studies with children began to be reported with increasing frequency. As evidenced in reports collected by Ullmann and Krasner (1965), Bijou and Baer (1967), and O'Leary and O'Leary (1972), application of behavior modification techniques, applied behavior analysis, or operant conditioning (terms commonly considered somewhat synonymous)

accelerated rapidly, beginning about 1965. Descriptions of these studies show the progressive application to a variety of setting; from reports of the treatment of disturbing behaviors in clinical settings (Ferster and DeMeyer, 1965), to home, nursery schools and public school classes (Becker, et al 1967). Efforts to modify a child's behavior in a classroom or to implement contingencies for groups of children were followed by attempts to restructure the total classroom environment (Honne, 1969; Neisworth, Deno and Jenkins, 1969; Jenkins and Corrafa, 1971).

The attributes of a contingency managed environment are presumed to include a redefinition of teacher role, increased opportunity for individualization of instruction, development of independent learning, learner's participation in the development of self-control, decision making or academic tasks, accelerated academic performance, reduction in disturbing behaviors, increased decision making and freedom for the learner.

These presumed attributes have been incorporated in environments where stimulus materials (assignments, task cards, work/reinforcer contracts) are prepared for individual children who work through them at their own pace. Task completion signal systems bring the teacher and students together to correct, remediate, and reinforce academic work. Reinforcer systems, in the form of "menu" boards, or reinforcement (activity) areas are present. Rules, and contingencies for following or violating them are publicly stated. The learner may be shaped for increasingly more independent functioning. Another factor in the development of independence is teacher-student negotiation on the development of work contracts, where the student is taught to specify realistic goals, work units, and reinforcing events.

The role of the teacher is changed radically in these systems. The teacher's responsibilities increase in the areas of individualized programming, diagnosis of specific learning problems, negotiating a reasonable work/reinforcer program, and individual consultation of students' independent work performance. Thus there is a major shift from control to consultation; a radical change for most teachers. Just as Skinner utilized a completely different language system to describe his operant analyses of behavior, it seemed reasonable to structure a summer retraining program on a completely different system; and to emphasize the difference by presenting models of both college instruction and child instruction. Thus both environments were incorporated into the summer program.

Contingency managed college instruction

Keller (1968) reported a then novel approach to college instruction which he had developed during the period from 1962 to 1968. Known as the "Keller plan, personalized system of instruction (PSI)", or contingency managed instruction (CMI), the structure of the course was radically different from the traditional lecture-discussion format. Keller (1968) listed these distinguishing features of the system:

(1) The go-at-your-own-pace feature, which permits a student to move through the course at a speed commensurate with his ability and other demands upon his time.

(2) The unit-perfection requirement for advance, which lets the student go ahead to new material only after demonstrating mastery of that which preceded.

(3) The use of lectures and demonstrations as vehicles of motivation, rather than sources of critical information.

(4) The related stress upon the written word in teacher-student communication; and, finally:

(5) The use of proctors, which permits repeated testing, immediate scoring, almost unavoidable tutoring, and a marked enhancement of the personal-social aspect of the education process.

(Keller, p. 83)

This approach has enjoyed wide spread acceptance (Lloyd and Kenten, 1969; Sheppard and MacDermont, 1970) and has become subject of study in its own right (Whitehurst, 1972; Alba and Pennypacker, 1972; McMichard and Corey, 1969; Johnston and O'Neill, 1973, Born and Whelan, 1973). As with the public school class, the role of the teacher changes dramatically in the university environment. Gone is the lecture-discussion format, and in its place is a system which engages the professor in planning, monitoring and remediating capacities.

Utilizing contingency management to teach contingency management

The basic attributes of public school and university level contingency management systems have been described. Having observed that summer trainees, particularly those with extensive teaching experience, are not necessarily receptive to new methodologies, the "do as I do" approach had a common sense logic. The application of a common set of behavioral principles to adult and child behavior provided the capability for demonstrations in two environments, and enabled the students to function both as observers and participants. The behaviors required of the professor to organize the content of the course were analogous to those of the teachers in the demonstration school, and to those required for the trainees to complete the methods course, e.g. the professor was required to write the behavioral objectives for a course module on behavioral objectives which required the trainee to write objectives in the same format, to a defined criterion. Deviations from accepted (defined) practice could result in the modifications of professor and student behavior.

In the author's view, the major attribute of both systems, and the major problem area is in the role change for the professor/teacher. At the public school level, there are fundamental differences between role of teacher and contingency manager (or in the words of Sidney Bijou, ...the lone

arranger). Without attempting to build a straw man stereotype, the teacher role is associated with authoritarianism, unidirectional decision making, teacher control of social behavior, delayed, and often noncontingent reinforcement. In contingency management or token economy environments, the adult assumes a managerial and consultant role, i.e. responsibilities shift to managing resources and consulting with students who assume greater control over the decisions relating to their educational program. Just as it may be difficult for professors to step out of their lecturer role, it is presumably difficult for teachers to conceptualize a role which removes them from their front and controlling position in the classroom. For this project, it was thought that demonstrating the change in role would provide a model which might increase the probability that imitation would occur when the teachers returned to their classrooms. The presumed attributes, now known to be long term, rather than immediate, for the professor, include freedom from a defined lecture schedule, opportunity to engage in an alternative style of information generation, time and freedom to address research priorities and a more personal involvement in the tutorial aspect of the professor student relationship. For the public school teacher, those attributes might include acceleration of children's academic performance, reduction of behavior management problems, a structure for individualization of instruction, additional time for more fine grain programming of children's academic performance, and access to data management systems to verify and summarize children's performance data.

The shift from traditional to nontraditional management roles dictates a change in the skill repertoire of the manager, in both university and public school environments. Although it can be argued that these skills are already part of the teaching repertoire, in many cases this is an unverified assumption. In any event, certain behaviors are required to develop each of the components of a contingency managed learning environment. These behaviors (competencies) were developed through the methods course. Thus, the college course was organized to develop the skills necessary to operate a contingency managed classroom. In-field observation of these behaviors was planned to document the extent to which teachers used the skills they were taught, and the extent to which they duplicated the structure of the demonstration class in their own environments.

Observation/evaluation procedures and competency based teacher education

The in-field observation component of this project was designed to document the extent teachers utilized, in their own classrooms, the skills they were taught in the summer program. It was suggested that a major benefit would be the development of in-field evaluation procedures. For the summer recertification program, this strategy shifted the arena from one replete with impossible conditions, as described earlier, to the teacher's natural environment, and removed the time constraints of the summer program. Soon, it was apparent that data systems and procedures developed for the recertification program might provide the tools for newly emerging competency based teacher education programs (CBTE). The foundations for CBTE were being laid in the late sixties, with the funding of nine projects to develop nontraditional models for teacher models. That CBTE exploded into national prominence with amazing speed can be best understood by looking

at critical events in a relatively short time frame. The request for proposals was initiated in 1967. The models were completed by 1968. By 1972, seventeen states had devised CBTE programs (Houston, 1974) and by 1974, nine states had "Accountability" laws on their books (Morrow, 1975). In less than ten years, this movement has commanded the attention of professional educational (for better or worse), has generated bitter opposition, has suffered major setbacks as evidenced in the Texas CBTE mandate and its reversal (Morrow, 1975), and may be dissipated or sidetracked in a storm of political controversy. The heart, and thus the difficulty, of this movement is the simple notion that teachers should be competent, and should demonstrate competence for a sufficient period before they receive a certification that is in reality a lifetime guarantee of employment. Most disturbing is the extension of this notion to the existing cadre of teachers whose tenure was established under a different set of rules. Specific difficulties center on the determination of competence and on how it is to be measured. Then, there is the question of the relationship of these competencies to child behavior. In 1971, when this project was conceptualized, not much of the history of CBTE was known, and, obviously not much had occurred. In special education, professional attention was focused on mainstreaming (returning the mildly handicapped to regular education) and noncategorical or cross-categorical training (Blackhurst, Cross, Nelson and Tawney, 1973). Altman, Chandler, Connolly and Meyen (1971) reported the first phase (competency research) of a project to train curriculum consultants, or resource support personnel. That project acknowledged a shared philosophy with common properties of the nine model elementary training programs Altman, et al, 1971, p. 16). The general procedure for competency specification was similar to many CBTE development efforts establishing face validity of specific skills on the basis of professional judgements. (Blackhurst (1974), a colleague in the department of special education at Kentucky, initiated a project to identify competencies and to develop training materials for administrators of special education instructional materials centers. He utilized a critical incidence technique to generate competencies; a more sophisticated strategy which required respondents to read a series of sample work experiences presumably related to administration, then to select those most critical for successful job performance. During this period, as competency lists were being generated in regular and special education, the major concerns of educators seemed to be "which set of competencies is the best or definitive set", or "how many competencies are necessary". Knowing that an expert in task analysis could generate an infinite set of behaviors, it seemed that a more functional and simple approach was called for. In the author's view, it appeared that the heat of the debate on these issues obscured more simple and for the moment, forgotten notions about the function of the classroom teacher.

A mini-analysis of the goals of education and their relationship to teacher competence

Whatever the goal of education is inferred to be, there is a general societal expectation that children will be different when each school year ends. Or, between the first and last day of school the child will have changed. It is assumed that he will behave differently and will know more.

Presumably, the direction of change will be positive, and he will acquire an increasingly more complex repertoire of behaviors. Further, it is assumed that the teacher will somehow be responsible for a portion of this change, and that the change will occur in an environment which has positively reinforcing properties, or which facilitates or nurtures growth and development. However one chooses to state it, the goal of teachers has always been to change behavior. While this appears to represent a behavior modification approach at first glance, a moment of reflection indicates that, no matter what one's philosophical or psychological look, the goal of schooling has remained the same, and this expression represents that goal in its simplest terms. For society, and for the teacher, the magnitude of change and the strategy to increase it, are the thorny problems which may bring the CBTE movement to a halt. Present methods of evaluation are inadequate, there is no doubt about that. However, until the notion of CBTE emerged, and, simultaneously, people began talking about teacher and system accountability, the measurement problem was quiescent. Now, few of the possible measurement alternatives are palatable to teachers; particularly competence defined as n units of change measured by student performance on pre-post standardized tests. Popham (1971) discussed the shortcomings of this approach, particularly the insensitivity of norm-referenced instruction, and the potential lack of correspondence between the content of instruction and the content of the test.

Teachers have other justifiable reasons for rejecting this alternative out-of-hand, primarily because, in the absence of other information, career decisions could be based on two data points. Then, most crucial to special education, standardized tests do not exist, particularly for children with severe and multiple handicapping conditions. Thus, there is no standard of measurement. Further, the magnitude of expected pupil gain has always been unclear where handicapped students are concerned. This problem is especially critical for populations severely and multiply handicapped now served under right to education mandates.

Other existing measurement systems which rely heavily on administrative judgements, and particularly those where judgements are made without direct observation, are equally unsatisfactory to the evaluator and the person evaluated. Certainly, subjective evaluations are insufficient to measure well-defined instructional behaviors to be developed in model training programs. The observation/evaluation system proposed for this project was influenced by the then current controversies over competency specification, by knowledge of the generally acknowledged dismal status of teacher evaluation, by the author's personal experiences as an evaluator of teacher behavior, by prior experiments in research in discrimination learning and in curriculum development (Tawney and Hipsher, 1970; Tawney, 1972b).

Components of the observation/evaluation system

The observation system was developed on the assumptions that: (a) the classroom should be a positively reinforcing environment, (b) children will work at a high and steady rate if their assignments are interesting, programmed at an appropriate level, and if successful completion is followed

by reinforcing consequences and (c) when instruction matches the child's ability, it should be possible to demonstrate the development of increasingly more complex knowledge/behavioral repertoires; and, further, that children should be able to respond with a minimum of error. Finally, it was assumed that in order for learning to occur, there are a set of prerequisite teacher behaviors which must be emitted to develop the system to obtain information on child performance. These behaviors, in part, might be demonstrated in a contingency managed classroom, and consequently formed the content of the methods course.

The assumption that the learner should work in a positive environment has been viewed as a basic and constant requirement of education, at least since the passing of those first generations of teachers who drummed the Puritan ethic into their pupils with a hickory stick. From a behavioral or functional perspective, the focus is on teacher-child interactions. The teacher who responds to children in a positive or humane manner, should increase the probability that academically relevant behaviors are emitted. From the first year's observation, the teacher evaluation was formulated in question form as

"Do you interact humanely with your students?"

A system was developed for classifying teacher and child behaviors as appropriate or inappropriate and a set of examples was developed for each category. Discussion on, and controversy over, this component identified several potential attributes during the course of the project. Since the behaviors are defined by example, an extensive set can be generated for each category. Once written, these are public events that any group of persons can observe in the classroom and, with high reliability, agree that the events did or did not occur. Further, once written, school systems, teachers and evaluation/monitor groups can list those which are considered appropriate within the system. If, in one system, there is administrative, teacher, and parent agreement that spanking in class without witnesses or other controls is an acceptable behavior, then within the social environment of the community, teacher evaluation will be influenced by these facts. In the more likely situation, where there is dissonance among groups, once behaviors are defined they are open to public debate, and public attention will focus on, and magnify existing practices. Thus, the system can be expanded and individualized.

For the purposes of this project, teachers were required to demonstrate that 90% of the teacher-child interactions were in the appropriate-to-appropriate category and that fewer than 10% were in the inappropriate-inappropriate category.

The second assumption, that children who are presented with interesting tasks that are appropriate to their ability level work consistently and without disruption, was evaluated with a simple on-off task time sampling procedure conducted during teacher-defined work periods. This measure, defines off-task behaviors, and can be used to document the source, type and frequency of disruptions. Again, the academic and social behaviors, once defined, are open to public examination. As with the teacher-child interaction scale, most persons with little training can conduct this component of an evaluation.

For the purposes of the evaluation component of this project, the performance criterion was 90% on-task behavior; i.e. 90% of the intervals sampled, for all students sampled, documented on-task behavior.

The major component of the observation/evaluation system is related to the third assumption, that children should demonstrate minimal error while they acquire increasingly more complex repertoires. This assumption was derived from a variety of diverse explanations of the nature of errorless learning. Within psychology, the experimental analysis of behavior has emerged as an active field of investigation. Within this field, carefully defined laboratory procedures have been developed to study discrimination learning within an errorless learning paradigm. Notably, Terrace's (1967) pigeon studies, Sidman and Stoddard's (1966) explorations of the performance of retarded individuals, Bijou's (1968) studies in the development of right-left discriminations with young children and Tawney's (1972b) attempts to train letter discrimination in normal preschoolers provided a body of work with implications for teacher education. To those familiar with both fields, there are parallels between good laboratory procedures, and preferred teaching strategies. Psychologists have not, however, been especially successful in convincing educators that these parallels exist (Skinner, 1968; Bijou, 1970). Sidman and Stoddard (1966) conducted an impressive demonstration of errorless learning discrimination training. Their subject, a 40 year old institutionalized retardate with little "intelligence" as defined by an obtained IQ score, was taught to discriminate between a circle and an ellipse whose dimensional differences could not be detected by an untrained examiner. Their procedures included these parallels to good teaching practices: (a) extensive testing and analysis of prerequisite behaviors (b) identification of reinforcing events (c) task analysis of each component of the terminal behavior, (d) pretraining to establish the basic response repertoire (e) development of stimulus materials with presumably small incremental steps of increasing complexity, (f) careful analysis of stimulus materials to insure only one possible reason for a correct response, (g) preliminary specification of prompts designed to facilitate correct responding, (h) systematic fading of prompts, (i) immediate reinforcement of correct responses (j) a defined correction procedure for incorrect responses (k) using error data for immediate and continuous revision of the training program (l) strategies to change reinforcers and reinforcement schedules to avoid satiation, and (m) a design for stimulus change to transfer stimulus control. Two components of their procedure, automated instrumentation and environmental control, while generally considered outside the domain of public education, nevertheless have some parallels in teacher behavior, e.g. immediacy of response, consistency and arrangement of an environment which is sufficiently distraction free to enable all children to work effectively.

Prior to the development of the proposal for this project, the author and his associates (Tawney and Hipsher, 1970, Tawney, et al, 1974) had incorporated many of these attributes into the structure of a language development program for young, developmentally retarded children, and had conducted experiments in a laboratory setting (Tawney, 1972b) to teach letter discrimination with the errorless learning paradigm. These experiences led to the development of the criteria for this component of the evaluation procedure:

"Do you produce positive and observable changes in students academic performance, over time and over increasingly more complex tasks?"

The criterion statement required that, of a sample of children (usually 50 percent) 90 percent of the children would be responding 90-100 percent correctly 90 percent of the time [90% of the days in a large (usually $\pm$ 30 days) sample of coursework].

The 90 percent figures do not reflect errorless learning. However, for this project they represented a reasonable deviation dictated by the state of the art in programming, and by a realistic view of the public school environment. It should be noted that the criterion was not viewed as realistic by most persons; the students, teachers who participated in the project, colleagues, and other professionals. That did not, however, interfere with setting or maintaining the standard.

To those who considered the performance level unreasonable, it was pointed out that while responses might range from 0 - 100 per correct, societal expectations for regular classrooms, as reflected in common grading standards, are that the majority of children will receive average or better grades, C's or B's, reflecting correct responding from 70 - 90 percent. A small number may fail, but this is an exception. Many will perform well, 95 - 100% correctly, though not consistently over time. Further, standards for reading instructions usually have reflected an expectation of a high rate of oral reading and comprehension, e.g. Betts', (1957) independent (99% word recognition, 90% comprehension), instructional (95% word recognition, 75% comprehension) reading levels. Thus, while initially startling, a re-examination of current educational practice shows that the criterion is not significantly different from common practice. Presumably, the teacher equipped with a modern repertoire of instructional skills, and the guidelines for establishing a management system should have little difficulty in meeting the three criteria. The experimental work with this system was designed to evaluate the extent to which these assumptions would be met and to determine the feasibility of this approach for evaluating teacher competence.

Relating assumptions of performance capabilities to teacher performances

Several suppositions are implicit in the basis assumptions which underlay the development of the competency based evaluation system. Or, certain events must occur if all the components are available for the data to be available. This section describes these suppositions, and relates them to the requisite teacher behaviors.

Identifying the appropriate instructional level for each child.

If "errorless" learning is to occur, the teacher must be able to identify the point in an instructional sequence where no errors occur. In general terms this means that she must have a well developed repertoire of diagnostic skills. Teachers of the mildly retarded were required to "know" the levels of specificity in diagnostic assessment as described by Smith (1968), to

practice assessment with formal and informal assessment instruments, and to document, for the in-field evaluator, the presence of a battery of diagnostic information for each child. This activity parallels the extensive pretesting conducted by Sidman and Stoddard (1966).

Identifying potentially reinforcing events.

Pigeon studies use subjects who have been reduced to eighty per cent of their ad libitum weight. Studies with nonvocal subjects rely upon presentation of presumably reinforcing events and observations of responses (obvious relish at the sight of a favorite food, toy, or event) or extensive recording of differing response rates when a variety of reinforcers are available. Vocal subjects, e.g. the college students and the presumably mildly retarded children enrolled in the demonstration class can articulate their preferences. High grades presumably reinforce college students; vocal children are emphatic and direct when they indicate their choices. In regular public school classes, children presumably work for occasional noncontingent reinforcement, or for their own rewards. Public school environments, however, are not always reviewed as an environment with highly reinforcing properties. That they are not, and particularly for children who are atypical, is documented by the development of reinforcing systems such as contingency managed classrooms or token economies (Neisworth, Deno, and Jenkins, 1969).

In regard to best practices, it is assumed that within a learning trail model (S^D , R_0 , R_e) selection of potential reinforcers, systematic attention to delivering reinforcement, and utilization of the principles of reinforcement is a necessary component of an instructional repertoire.

Task analysis of each component of the learning trail.

Stimulus materials can be prepared to precise specifications in a laboratory. The topography of a motor response can be defined with equal precision, e.g. the units of force required to close a microswitch. Reinforcer selection as noted, may be determined by an elaborate, continuous process.

The term task analysis had been recently incorporated into the special education skill repertoire, as attention has been directed to the education of moderately and severely developmentally retarded individuals. The ability to do a task analysis of motor and self help tasks has accelerated in importance as the curriculum for these persons has focused on basic communication and self-management skills.

Regular education teachers who demonstrate best practices in their teaching repertoires may employ a similar strategy, concept analysis, to program for their students. The process has been inferred, but rarely taught as part of the general education training sequence. Further, when mentioned, it is rarely defined.

Task analysis is a process, or sequence of behaviorial events, which includes analysis of a task, specification of major task components, and subsequent, successive and increasingly more precise analysis and specification of subcomponents of the task. With motor tasks, subcomponents will comprise instructional blocks within a chain of responses or movement. Once delineated, a fine grain instructional plan can be developed for each subcomponent. And, further, failure to perform the task will lead to a re-analysis and further component specification. Thus, task analysis can be reviewed as a continuous loop process, where unsatisfactory task performance leads to reanalysis. Presumably, when learner performance is errorless, reanalysis will stop, and attention will be directed to a new task. When incorporated as the framework for an instructional program, the written steps or components are incorporated into instructional strategies which include objectives, and specifications of prompts to be used to shape the response. Thus task analysis becomes a central aspect of an errorless learning model.

Pretraining to establish a basic response repertoire.

Laboratory studies with infrahuman species include pretraining sessions to adapt the organism to handling, and to the experimental environment. Often hand shaping is used to reinforce approximations to the responses required to trigger the apparatus. Invariably, the response is a single, complex motor chain which is sufficiently distinct from other behaviors to ensure that a current response is discriminable from an incorrect response.

Children with moderate, severe and profound developmental retardation are required to go through intensive pretraining experiences in order to become candidates for instruction. Elsewhere, we have developed programs for teaching attending behaviors, including eye contact, development of a set of discriminable motor responses that may be used to demonstrate that there is a response to instruction, e.g. touch, pick-up, give, etc.; and behaviorial control to enable the child to sit quietly for a sufficient period to respond to instructional requests without interputing his or others's opportunities to learn.

For the regular classroom, or for children with mild handicapping conditions, the functional analogs to pretraining focus on less concrete behaviors but are nevertheless, present. By pretesting, the best teachers will verify, the presence of absence of basic concepts, and will verify that the child has the pre-requisite skills to accomplish the task. Math instruction (simple addition), for example, will be preceded by training and verification of the specific pre-requisites to instruction. These skills overlap with, or are an integral part of, task analysis and evaluation of pre-requisite behaviors.

Development of stimulus materials with presumably small incremental steps of increasing complexity

The critical attribute of the errorless learning methodology is the design and presentation of stimulus materials. In a traditional two choice discrimination learning problem, both the correct and incorrect responses are presented initially, and presented repeatedly until the subject "learns" the concept and makes the discrimination. A typical description of performance includes a period of chance responding, followed by a rapid increase in correct responses as the "concept" is verified and alternate possible "concepts" are eliminated, and then followed by responding near 100 per cent correct level.

Errorless learning procedures, in contrast, may begin with only one stimulus present, so that the subject who has the response in his repertoire, and who does respond upon request, can only respond correctly. When the task is visual discrimination, it is possible to introduce the not correct alternative later, and at a reduced intensity. The sequence which Sidman and Stoddard (1966) used might be described in these steps:

Stimulus key present-full illumination, no stimulus present.
Fade S^D onto fully illuminated stimulus keys.
Increase illumination on S^Δ keys, no form present.
Fade S^Δ stimuli onto blank, illuminated keys.
Bring S^Δ to full intensity.

Tawney and Hipsher (1970) used an analogous procedure to teach concepts utilizing a motor response and actual objects. Their sequence included:

- (a) shape motor response.
- (b) present only S^D 's.
- (c) demonstrate a response and reinforce an imitative response.
- (d) verify performance through response by response data collection.
- (e) place S^Δ 's at rear of stimulus display.
- (f) fade in (move forward) S^Δ 's.
- (g) intermix S^D 's and S^Δ 's in the stimulus array.

This procedure represents a functional analog to the laboratory procedure, and has been used in other instructional settings.

In the most general terms, "best" teachers program so that their students go step by step in the acquisition of simple to complex concepts, or the cumulative development of an instructional repertoire, e.g. match skill acquisition. Some of these sequences are well laid out by the developers of instructional materials, others are not. A basic teacher task is to identify the least - change components and present them in the order defined by the content of instruction.

Analysis of stimuli to insure only one possible reason for a correct response

In a laboratory procedure, position, order of presentation, analysis and incorporation of cue properties of stimuli are carefully controlled to insure that when a subject does begin to respond reliably, there is no confusion that he has learned the concept that was taught. The degree of specificity required in a laboratory can rarely be maintained outside that environment. Instead, best practices in classrooms will use vocal probing techniques, analysis of error patterns on daily worksheets, or direct observation of the learner's task performance, to insure that correct responses reflect "understanding" of a concept. The divergence between laboratory and classroom practices is perhaps most apparent here; yet it is critical for the teacher of the handicapped that the source and amount of child error due to "misunderstanding" be controlled.

Preliminary specification of prompts to facilitate correct responding

In laboratories, selected cue properties of visual stimuli can be enhanced systematically. In the classroom, the teacher can obtain some materials which are similar to laboratory prompts, e. g. using letter identification cards with a common object superimposed on the letter. Teachers may also use voice cues, partial vocal prompts, contextual cues, demonstrations and other devices to elicit correct responses from their students. Teachers of children with severe developmental problems may find themselves using physical cues as assistance to guide the development of motor chains, sometimes prompting a child through the chain with total physical assistance. Thus, in both environments, best practices will incorporate a variety of prompts to bridge the gap between old and new learning. Where prompts are specified in advance, they become a demonstrable part of instruction, and can be evaluated on two dimensions, specification and execution.

Systematic fading of prompts

Prompts can be faded with great precision in the laboratory, when the dimensions of intensity, illumination, etc. are critical. In the teaching environment, less precise measures are available. Teachers may place less stress on these critical attributes in a vocal chain, or may reduce the number of prompts, suggestions, or clues to students. In both environments, it is possible to analyze the learning task and plan to introduce, then remove, cues which will facilitate learning. Where prompts are physical, one would expect to find a plan, or strategy for handling this component of academic instruction.

Immediate analysis of error data for immediate and continuous program revisions.

Regular classroom instruction can only approximate automated or computerized handling of programs based on an instantaneous error analysis. Nevertheless, best teaching practices have always been those that focus attention on children's task performance and analysis of error patterns where they occur. "Best" teachers identify letter reversals in writing, systematic pronunciation errors in oral reading, and common computational error patterns

in math instruction. Thus the strategy is common to both environments, but differs on a time dimension. A major attribute of a contingency managed environments is that the structure enables a teacher to remove herself from a constant "Teaching" posture and to, act as a "Consultant", who is more accessible (and immediate) to students as they complete their work at their own rate.

Strategies to change reinforcers and reinforcement schedules to avoid satiation

As noted, the reinforcing properties of the public schools have been inferred not verified. Best teaching practices have probably been those which single out children for their unique accomplishments, and provide public recognition for them. In the laboratory, more careful attention has been paid to the verification of the relative reinforcing properties of consequent events. When systematic reinforcer verification and scheduling have been incorporated into classroom environments, the difficulty in maintaining a constantly highly reinforcing state has been amplified. Part of an improved technology for education should incorporate reinforcer selection and schedule shifting.

A plan for transfer of stimulus control

In the Sidmann and Stoddard (1966) study, stimuli were transformed from one shape to another, to verify that the concept taught was the concept responded to. There are probably few analogs to these procedures in the regular classroom. As attention is focused on children with increasingly more complex learning problems and handicapping conditions, it will be necessary to develop extensive instructional programs while incorporate initial discrimination learning, generalization to other stimulus events, teachers, environments and life-situations. Strategies will also be required to verify skill acquisition and maintenance.

To carry the analogy between laboratory and best educational practices to its conclusion, it should be noted that parallels can be drawn between the two environments. As noted, in some areas there is point to point correspondence while in a few such close correspondence does not exist.

The purpose of this extensive listing of desired attributes of a learning environment is to identify those components of an errorless learning procedure which might be found in the public school environment. Earlier, the performance criterion for the child response data was listed. The procedures section will describe how that information was collected, and how certification decisions were made during the latter phases of the project. It was also noted that a preliminary analysis of the learning environments would be made to determine the extent to which certain behaviors, or the observable products of teacher behavior considered prerequisite to instruction, would be present. Many of these formed the content of instruction for the methods course, e. g. diagnostic testing, writing behavioral objectives, structuring token economies, behavior modification projects, programming in content areas, etc. Teacher certification, at this stage, was not contingent on the presence of specific products, rather those products were used as raw data to determine teacher's skill in practicing what they were taught, and as information for the development of a full scale competency evaluation system which would be both discriminating and remedial in nature.

Chapter 2

Implementation Strategies

and Outcomes

INTRODUCTION

This project was conducted during a four year period. In this report, each summer session and the following academic year is reported as a separate phase. The structure of the demonstration class and the methods course is reported in detail in Phase I, is abstracted from the first interim report (Tawney, 1972), and is not reported thereafter. The observation and evaluation procedures were modified each year, and those changes are reported in each phase description. The outcomes are reported by phase. The discussion and summary of the whole project is contained in a subsequent chapter.

Phase I

Summer 1971

Academic Year 1971-1972

The specific objectives for this phase of the project were to:

- (1) structure a "methods" course on a contingency-managed system.
- (2) institute a contingency-managed class for "educable" developmentally retarded children in a summer demonstration class.
- (3) evaluate college students' "academic" behavior on criterion measures.
- (4) evaluate college students' teaching behavior in their classrooms, during the following academic year.

Content

The materials for the methods course were adapted from earlier versions of courses for the educable and trainable mentally retarded. Preliminary arrangements to develop the demonstration class were made with the local school system.

Contingency Managed Methods Course

Staff

The course was taught by the project director. Two graduate assistants served as proctors. Professor function included writing and revising materials for the course, providing technical assistance with child-related student projects, and conducting the seminars.

Proctors were available for four hours daily, to tutor students, offer technical assistance, administer posttests, and provide a variety of supportive services.

Content

The content of the methods course was presented in eleven modules of instruction:

1. Writing behavioral objectives
2. Resources for special education teachers
3. Task Analysis
4. Behavior modification
5. Contingency managed instruction
6. Assessment of exceptional children
7. Evaluation of instructional materials
8. Programming educational tasks in reading
9. Programming educational tasks in math
10. Programming educational tasks in language
11. Parent conferences

The module outlines are included in Appendix A.

Module Components

Each module was the equivalent of a miniature "course" in the sense that, objectives, tasks to be completed and statements of criterion performance were clearly specified. While tasks required for some modules were prerequisite to entering others, each was basically independent of other content areas.

Each module contained different components, from the following set:

1. Module title
2. List of possible dates for completion of specified tasks, or posttests
3. Dates for contingent seminars or other special events
4. Point values for tasks
5. List of materials necessary to complete the module
6. List of supplementary materials or resources
7. Statement of behavioral objectives
8. Task specific statements of criterion performance

Course Materials

Three texts were covered during the summer, Smith's (1968) Clinical Teaching: Methods of Instruction for the Mentally Retarded; Mager's (1962) Preparing Instructional Objectives and Neisworth, Deno and Jenkins (1969) Contingency Contracting and Classroom Management.

Structure and Sequence of Course Activities

The course was originally scheduled to meet daily for an hour, during the eight week summer session. That schedule was supplemented by a more flexible schedule, in keeping with the personalized nature of the course, incorporating the following modifications:

1. observation and child project activities were scheduled in the demonstration school at the time the course was regularly scheduled to meet.
2. proctors were available for four hours daily, to meet with students on an individual basis.
3. the professor was available to answer student questions on an individual basis.
4. the class met as a group only when seminars were scheduled -- eight were held during the summer session.

This schedule permitted students to spend a major portion of the morning in the demonstration school setting, working on child-related projects: and their afternoons on campus, working independently, with the assistance of the proctors and the professor.

The basic sequence for completing a module allowed the student to:

1. obtain student performance sheets (containing the information listed in the components section) and materials required to complete a module from the proctors.
2. complete contingent (zero or low point value) tasks, to engage in high probability (point accruing) tasks.
3. submit completed tasks to proctors, who corrected them immediately and stated whether criterion performance had been met. If not, proctors tutored students so that immediate corrections of errors occurred.
4. request posttests, if included in the module. Three posttests were available, with variable point values assigned to each. The first posttest was made available to the student when he had demonstrated criterion performance (usually 90% correct) on the contingent tasks for the module. When the student completed the posttest, the proctors immediately graded it and indicated if criterion performance had been met. If not, the student's error responses were corrected (explained) and tutorial assistance was provided. This sequence was repeated if the student did not meet criterion on the third posttest, the proctors directed him to the professor, for a tutorial session.

5. attend a seminar if scheduled. Content of the seminars was issue oriented rather than content-dissemination oriented, e.g. the major direction of the behavior modification seminar was directed toward questions such as "How do I convince parents its really not bribery", rather than "What is the difference between punishment and negative reinforcement".
6. observe his record of performance on charts posted in the proctor's work areas.

Criterion Performance Measures

Point values were assigned to each task students performed to complete the modules. Certain tasks were assigned a zero point value, with task completion a prerequisite for engaging in a high point value task, e.g. the task "write a list of questions over the content of Mager's book. . ." carried a zero point value since no criterion performance was specified other than task completion. The opportunity to receive the posttests for that module, however, was contingent upon documentation that that task had been completed.

The criterion performance for posttests was high (usually 90% correct) and uniform for all posttests on a module. The point value assigned to the second posttest was equivalent to a grade of "A", with a higher number of points available for passing the first posttest, and fewer points for the third posttest. No points were assigned to the mandatory professor-directed tutorial for students who did not pass the third posttest. However, students were required to respond 100% correctly to the vocal questions in that session, in order to receive credit for the other points assigned to tasks for the module.

Criterion performance on children's academic and social behavior change project was based on student's ability to produce behavioral change in the children they worked with.

Contingency Managed Demonstration Class

Staff -

The class was taught by a teacher with training in behavior management techniques. Two data collectors were present in the classroom. After the class had been in session for a few days, the two data collectors alternated between the functions of data collection and dispensing token reinforcers, except during periods when reliability checks were scheduled.

Children

Children were selected for the class by special education personnel in the local district, on the basis of their prior placement in an "EMR" class and/or because they exhibited a high rate of disruptive social behavior.

Class Structure

A contingency managed demonstration class was implemented on a half-day basis for a six week period, in conjunction with other classes conducted as part of the summer school program. The class was scheduled to begin with a 5 day period of baseline under "normal" classroom management conditions, followed by full implementation of a contingency managed token economy system; based on the assumption that a comprehensive folder of materials would be available for each child, that children would be selected in advance of the summer session and that all administrative details relating to classroom function would be completed. These assumptions were unwarranted, and resulted in a number of deviations from the original plan: e.g. children entered the classroom with no "history", the population of children varied rapidly during the first week of the program, high rates of disruptive social behavior required a system for noncontingent disbursement of social and candy reinforcers, and data collection instruments were revised during this initial period. These factors limited the number of "baseline" days, and reduced the period the classroom management system was in effect.

When fully operational the physical environment was modified by placing each child's desk around the perimeter of the classroom, facing the wall. A border of masking tape attached to the carpet around each desk defined a work area for each child, and allowed observers to clearly identify out-of seat behaviors. Later, a reinforcement area was established in the middle of the classroom. A time-out room, located some distance from the classroom was used for children who physically assaulted others.

Instructional Strategy

A folder of "academic" materials was prepared for each child on a daily basis. Individual instruction was maximized and group instruction was minimized.

Reinforcement System

The token economy reinforcement system which was implemented after the baseline period contained a variety of components. The system was modified several times during the summer as children's behavioral repertoires dictated. Children received tokens for completion of academic work, as well as for appropriate (nondisruptive) social behavior. Tokens, paired with social reinforcers, were dispensed immediately by the teacher and aide.

Children were able to trade their tokens for tangible back-up reinforcers (toys, etc), privileges, and; eventually, for time in the reinforcement area where they could engage in highly preferred activities. A display board containing toy reinforcers and their price was placed in a prominent position in the classroom.

A reinforcement menu was posted in the room which listed the values for certain "privileges" reinforcers (getting drinks, etc.).

Data Collection

The data collector sat in an unobtrusive position in the classroom, recording children's on-off task behavior, and teacher-child interaction data.

A time sampling technique was used to record children's on-off task behavior. Children were observed sequentially for a 10 second period, followed by a 5 second interval during which no data was recorded. The coding system forms and procedures are shown in Appendix B.

Teacher-child interactions were recorded continuously for a 60 minute period, using the forms and codes shown in Appendix C. This system categorizes teacher and child behavior as appropriate or inappropriate, creating four categories of teacher behavior:

- a. appropriate teacher response to appropriate child behavior
- b. inappropriate teacher response to appropriate child behavior
- c. appropriate teacher response to inappropriate child behavior
- d. inappropriate teacher response to inappropriate child behavior

For the purposes of this study, category (a) responses (appropriate to appropriate) were defined as positive physical or vocal acts for children's "good work or nondisruptive behavior", e.g. "Good work, Tyrone, your arithmetic worksheet contains no errors". Category (c) responses (appropriate to inappropriate) were limited to two types of teachers behavior: ignoring inappropriate (disruptive behavior) or timing the child out (placing him in the time-out booth) for physical assaults on other children. An inappropriate response to inappropriate child behavior (category d), then required teacher attention, e.g. "Stop that", "Sit in your seat", statements. Category (b) (inappropriate teacher response to appropriate child behavior) was rarely observed, but would be exemplified by a statement such as "Don't bother me, I'm busy," when a child initiated a signal to the teacher that he had completed a task.

The two types of data were recorded at different periods during the 1/2 day class session, when children were engaged in "work" activities. On-task behavior was plotted daily, and posted in the observation room adjacent to the classroom.

A record of children's academic performances was kept during the summer program. Changes in children's academic behavior were reported in summary form, and transmitted to the local special education center administration, who transmitted the information to each child's teacher when the regular academic program began.

In-field Evaluation

Staff

An in-field evaluator who was trained in observation and recording techniques was employed. Before the in-field evaluation began, the evaluator established reliability on the observation instruments by simultaneously recording data with individuals who had previously demonstrated reliability in public school classrooms in the local community.

Data Collection Procedures

The in-field evaluation procedure was explained to students during the summer session. The evaluation period was preceded by the following sequence of events:

- a. each superintendent who employed one of the teachers seeking certification was contacted by telephone, to request an appointment to briefly describe the project.
- b. a cover letter was sent to superintendents along with a preliminary draft of the evaluation materials.
- c. appointments were scheduled with superintendents, principals and teachers.
- d. during the initial contacts, the project director and the evaluator explained the procedures in detail, and scheduled a time for the observation period.

Twelve of the thirteen teachers were observed for the scheduled five day period, with some exceptions when the period was reduced by teacher illness, teacher work days, etc. One teacher permitted two days of evaluation in her classroom, then requested that observation be discontinued.

Data was collected on teacher-child interaction, on children's on-off task behavior, and on children's academic performance. A checklist, designed to determine the extent to which course materials and methodologies were implemented was completed (Appendix D).

Teacher-child interactions, and on-off task behavior samples were obtained during scheduled work periods, at the same time each day.

Data for the checklist were obtained from class records, from an observation and analysis of the structure of the classroom, and from child performance, observed and recorded while interacting with individual children.

Samples of children's academic performance were collected by taking individual children to a quiet spot in a corner of the classroom or to an area outside the classroom setting. The classroom teacher specified the materials to be used for testing. The evaluator recorded work performance rates and specific types of errors. This data was attached to the checklist form. The set of data collected in each classroom was placed in a folder which, when summarized and graphed, yielded a profile on each teacher.

The evaluator collected the teacher and child performance from an unobtrusive spot, usually at the rear of the classroom. However, since the evaluator was in the school for a full day for an extended period, there was a good deal of interaction between her and the teacher, as well as with the children. She did not interact with children during class periods, further, her interactions with teachers generally were limited to social interactions. Teacher-initiated professional questions were answered with neutral statements. A question such as "Do I do _____ the right way?" would be responded to with a neutral "That's fine".

These procedures yielded a five day sample of teacher and child performance, a profile of material and methodology usage, and limited samples of children's academic performance, taken to determine the extent to which their instruction was at a level enabling them to perform at a high percent of correct responding.

The total data sample from the classrooms provided an approximation to an analysis of the quantity and quality of instruction.

College Student Feedback Systems

The methods course students were given a questionnaire to evaluate the methods course, as well as the observation procedure. The information from these questionnaires was used to modify procedures for subsequent phases of the project.

Outcomes

Methods Course

Course Grades

It was projected that 80 percent of students would complete the course with a grade of A. The final grade distribution is shown in Table 1. Eighty-five percent received a grade of A.

Table 2

Grade Distribution

EDS 526

Grades	n	percent
A	23	85.2
B	1	3.7
C	1	3.7
Incomplete	1	3.7
Withdrew	1	3.7

Module Content Performance

It was hypothesized that 85 percent of the structure would meet the 90 percent criterion on the first posttest experience. As shown in Table 2, an average of 77.8 percent of the students met the 90 percent criterion of the first test, approximating but not meeting the objective. Only one student failed to meet criterion on the third posttest.

Table 2

Student performance on each of the three
posttests for modules which included posttests

Percent Passing						
Module	n	First Posttest	n	Second Posttest	n	Third Posttest
Behavioral Objectives	16	61	10	39		0
Contingency-managed Instruction	21	80	4	12		0*
Diagnostic Testing	19	73	6	23	1	4
Programming Reading Tasks	15	57	8	31		*
Programming Math Tasks	25	96	1	4		0
Programming Language	26	100		0		0
*no record of performance for all students						

Range of Points

Letter grades were obtained by totalling the points for each assignment, posttest, or activity. As noted, the point distribution for module posttest was weighted so that bonus points were obtained for passing the second posttest. The total number of points possible was 477. The final point distribution for the course ranged from 234 to 464. The criterion for an A was 385 points.

Summary of Module Activities and Points

The module titles, assignments, and point values are summarized in Table 3.

Table 3

Module Task Requirements and Point Values
for the Methods Course

Module	Tasks	Points
Writing Behavioral Objective	(1) Complete self test on Mager	0
	(2) Prepare a list of questions on Mager content	0
	(3) Write 10 objectives which meet Mager criterion	10
	(4) Discriminate observable from non- observable behavior	15
	(5) Posttest	20

Table (Cont'd)

Module	Tasks	Points
	(6) Contingent Seminar	10
	(7) Contingent session	10
Obtaining Instructional Resources	(1) Obtain library card	0
	(2) Request information through Instructional Media Center	2
	(3) Critique instructional materials	5
Task Analysis	(1) Complete one task analysis	5
	(2) Contingent session	10
Behavior Modification	(1) Conduct a behavior modification project	100
	** (Part of activities assigned credit in another course)	
Contingency Managed	(1) Write a plan for developing a token economy in teacher's own classroom	20
	(2) Posttest	50
	(3) Contingent session	10
	(4) Contingent seminar	10
Assessment	(1) Administer group I.Q. test	5
	(2) Administer group achievement test	5
	(3) Conduct oral reading error analysis	5
	(4) Contingent seminar	10
	(5) Conduct individual arithmetic assessments	5
	(6) Write a summary report of assessments	5
	(7) Posttest	15
Evaluation of Instructional Materials	(1) Select materials for educational programming	10
Programming in Reading	(1) Prepare a list of questions over text content	0
	(2) Conduct reading instruction for extended period	50
	(3) Posttest	20
	(4) Contingent seminar	10
Programming in Math	(1) The task was the same as Reading-students selected either reading or math programming.	
	(2) Posttest	20
	(3) Contingent seminar	10
Programming in Language	(1) Posttest	20
	(2) Contingent seminar	10

*Note: Students were concurrently enrolled in another course taught by the project director, and received credit for part of some major projects in that course.

Student Evaluation of the Course

Students were asked to evaluate the methods course on two occasions, at the end of the summer session and again during the academic year. Responses from both evaluations are included in Table 3. Twenty-four of the twenty-six students enrolled in the methods course responded on the first evaluation. Eleven of the thirteen teachers who participated in the in-field evaluation responded to the second questionnaire. Inspection of the table illustrates some correspondence between the two sets of responses, indicating that students reactions to the course did not appear to change markedly after a period of time.

Table 4

Student response to forced choice questions
on course evaluation

Question	Response	End of Summer 1971 n	Spring 1972 n
1. Compared to other courses which you have taken, the amount of work required for this course was:	much less	0	0
	less	0	0
	about the same	2	0
	more	6	11
	much more	16	0
2. The objectives of this course were quite specific. Did the course meet the stated objectives?	yes	18	9
	to some extent	5	2
	no	0	0
3. To what extent was the course content new information?	completely	8	2
	to some extent	14	9
	not at all	0	0
4. Was the structure of the course new to you?	yes	24	10
	no	0	1
5. Did you receive credit for each "unit" of the course?	yes	21	11
	no	3	0
6. Was the time between "units" of work sufficient to complete all the tasks?	yes	6	5
	no	15	6
7. Did you enjoy the course?	yes	20	10
	no	3	1
8. In comparison to other courses I have taken, I learned	more	13	8
	about the same	10	3
	less	0	0
9. We assume the majority of students in this class will receive an A. Estimate the grade you would have received if this course were graded on a "normal curve."	A	10	7
	B	10	4
	C	2	0
	D	1	0
	E	0	0

The evaluation sheet contained a set of open-ended questions. Most frequent responses to those questions are shown in Table 5. Again, there appears to be correspondence between the evaluations.

Table 5

Student responses to open ended questions
on course evaluation

Question	End of summer responses	n	Follow-up responses	n
10. What aspect of this course will be/ was most beneficial?	behavior modification	11	behavior modification	5
	observe at Blue Grass		contingency	
	school	6	management	3
	educational assess- ment	5	observations	2
	CMC	4	token economy	1
	language	1	testing	1
	behavioral objectives	1	task analysis	1
	task analysis	1	writing objectives	1
	programmed instruction	1	group discussions	1
	evaluate instructional materials	1		
11. What aspects of the course will be/ were least beneficial?	seminars	6	observations	2
	all will help	4	no comment	2
	testing	2	testing	1
	evaluation of materials	2	behavioral objectives	1
	no comment	2	task analysis	1
	counting behavior	1	contracts with students	1
	much of the reading			
	reading module	1	evaluation of	
	readings on math	1	instructional	
	writing questions on modules	1	materials	1
	observe at Blue Grass	1	token economy	1
	phase out of behavior modification	1	behavior modification	1
	point system for grades	1		
12. What did you expect to learn that was not taught?	nothing	7	no comment	5
	no comment	4	how to teach reading and math	4
	how to write lesson plans/units	3	how to present units	2
	how to use specific materials	3	how to plan curri- culum	1
	methods/curriculum for EMR	2	how to prepare units	1
			more about discipline	1

Table (Cont'd)

Question	End of summer responses	n	Follow-up responses	n
	how to deal with specific problems	1	how to deal with problems	1
	how to begin a Sp. Ed. class	1		
	how parents can aid child in school work	1		
	self-pacing skills	1		
	characteristics of EMR	1		
14. How would you change the professor's function in this course?	more interaction with Ss	8	should interact with students	7
	no change	7	no comment	2
	available more	2	during lectures, talk more about actual	
	aware of problems in doing modules	1	classroom incidents	1
	more instruction	1	have modules ready on time	1
	simpler explanations	1		
	be at Blue Grass school for suggestions/advice	1		
	no comment	1		
15. How would you change the proctor's function?	no change	16	excellent	5
	performed well	4	no comment	4
	be punctual	3	be in room at at designated time	2
	most efficient	3		
	don't lecture with posttest	1		

1 Students could list more than one response

Contingency Managed Demonstration Class

No data are reported here for child or teacher performance.

In-field Observation

Teacher-Child Interaction

Individual graphs of each teacher's appropriate and inappropriate responses to children's behavior were included in an interim report, and are not repeated here. Generally, a high percent, but low rate of appropriate-nonappropriate interactions during specified work periods. With two exceptions, the majority of teachers clearly attended to children's appropriate behavior at a higher rate than to children's inappropriate behavior.

Child On-task Behavior

Individual graphs of on-task were included in an interim report, and are not presented here. Again, with two exceptions, a high rate of on-task behavior was demonstrated in the observer's presence. The mean percent on-task behavior for each teacher's class is summarized in Table 6.

Table 6

Average Percent On-task for Each Class, for the Evaluation Period

Teacher Code	# of Data Points	Average Percent On-task
71-109-7	2	45
71-109-13	5	96
71-111-11	5	93
71-21-2	5	95
71-30-1	5	91
71-13-8	5	92
71-98-9	7	87
71-32-10	7	98
71-30-5	4	94
71-34-4	4	88
71-13-6	3	87
71-31-3	5	94
71-75-12	*10	74

*One sample in each of two hour class periods for different students per day

Classroom Structure and Program Planning

The focus of the summer training program was on the development of contingency management classrooms. Components of the system were incorporated in eleven of the thirteen classrooms. A summary of the specific components found in the classes is shown in Table 7.

Table 7

Observed components of contingency
management systems in teachers classrooms

Component	Present	Absent
I. Physical environment		
separate task and reinforcement areas	2	11
task and reinforcement areas combined in the classroom	9	4
time out area adjacent to classroom	5	8
central work table for student's daily assignments	2	11
II. Additional personnel available		
paid aide	4	9
volunteer aide (adult)	1	12
student aide		
member of class	11	2
member of another classroom	1	12
another teacher	1	12
III. Reinforcer system		
reinforcement menu	5	8
tokens	7	6
IV. Types of reinforcers		
highly preferred academic tasks	1	12
privileges (free time, time away from classroom, drinks, bathroom privileges, leadership roles--including peer tutoring, etc.)	12	1
non-academic tasks or activities (games, puzzles, etc.)	11	2
consumable or nonconsumable tangible reinforcers (candy, toys, games, puzzles, clothing, etc.)	8	5
V. Instructional System		
individual daily assignments for each child	9	4
task cards or work folders	5	8
individual child tutoring by teacher	12	1
contingent sequencing of academic tasks for children (least-to-most preferred)	1	12

Table 7 (Cont'd)

Component	Present	Absent
VI. Contingency management procedures		
observable classroom management rules (written on blackboard, written statements for each child, vocal statement by T in presence of observer).	2	11
contingent disbursement of tokens by T or other	4	9
immediate correction of incorrect child responses on academic tasks	8	5
specified token exchange periods	3	10
observable group behavioral control procedures (use of timer to obtain free time, etc.)	1	12

Content Area	Observation
Evaluation of Instructional Materials	None of the teachers used the materials analysis guide provided in the methods course to evaluate materials. Eight teachers indicated that they served on a materials selection committee, and nine indicated that they had been responsible for purchasing materials for their own classrooms.
Parent Conferencing	A set of questions was asked to determine the extent to which teachers communicated positive attributes about children to their parents. Five stated they held conferences to discuss positive child behaviors, twelve indicated they sent "good academic work" home, none indicated that they used graphs of specific behavior change to document their activities to parents, one indicated that diagnostic and educational programming materials were used to document her activities to parents, ten stated they referred parents and pupils to other agencies for professional assistance and three indicated they cooperatively worked on behavior change projects with parents.

Children's Academic Performance

Limited academic behavior samples were collected, under the conditions described earlier. Data from oral reading samples is shown in Table 8.

Data were collected to determine the extent to which other course content areas were incorporated into the teacher's repertoire. It was found that:

<u>Content Area</u>	<u>Observation</u>
Writing Behavioral Objectives	Of the 13 teachers, 4 had no lesson plans, 3 had weekly plans, 4 had daily lesson plans and 2 had lesson plans broken down on an hourly basis. No teacher had minute-by-minute lesson plans for children, and no teacher had specific sets of lesson plans for each. Students were taught to write objectives which followed the Mager format (condition-behavior-criterion). No teacher followed the format; one teacher used a format which contained a behavioral statement.
Resources	Each teacher was required to obtain a library card for the local Special Education Instructional Materials Center. A mid-year check of client records from that center showed that, at that date, none of the teachers had obtained materials from that center. Twelve of the thirteen teachers, however, indicated that they had access to additional library resources.
Individual Behavior Change Projects	One teacher had evidence of one graphed behavior change project with one child.
Educational Assessment	Examination of the teacher's records showed that a variety of group achievement instruments had been administered. One teacher had information from a diagnostic reading test. Eleven teachers had no arithmetic assessment data, two had records of group achievement tests, one teacher had records of her teacher-made test and one teacher had evidence of a related (mastery) test. Two teachers had "written, up-to-date (1 month or less) summaries of each child's level in reading and arithmetic skills".
Educational Programming	Three teachers made samples of child performance data available to the evaluator. Eight teachers permitted the evaluator to assess children's functional level in an academic area through the individual assessment procedure. The results of that assessment are shown in Table 8, in the following section.

Table 8

Subject-by-subject performance on
individual reading assessments

Teacher Code	length of sample (minutes)	no. of words read	rate (words per minute)	percent correct
71-109-7	6	444	74+	98
71-111-11	8	440	55+	98
71-98-9	6	664	110+	99
71-31-3	5	246	49+	96
71-13-6	6	221	37+	90
71-31-4	5	139	28+	72
71-13-8	8	450	56+	94
71-21-2	8	586	73+	97

Teacher Evaluation of the In-field Evaluation Procedure

A questionnaire was sent to participating teachers to obtain their evaluation of the in-field evaluation. Those data were included in an interim report and are not reported here.

Discussion of Phase I Activities

This phase of the project was considered a pilot attempt to modify the structure of a traditional two summer recertification program to train teachers of the educable mentally retarded. Each of the objectives was met, and it was determined that it was feasible to conduct an in-field observation of teacher performance.

Functionally, summer school students' schedules were rearranged so that they had the opportunity to work in the demonstration classrooms, obtaining practical experience with concepts and a classroom structure which was relatively new information for them. Thus, substituting a semi-self paced course enabled students to shift from a didactic to an experiential structure. As noted in an earlier report, scheduling and pacing problems were evidenced during the summer. And, the amount of content appeared to reach overwhelming proportions for the students.

The demonstration class served its original, and an unplanned objective. Students observed a classroom which incorporated all of the major components of a contingency managed system, and could relate classroom examples to their own experiences. At the same time, due to operational problems, they observed a class implemented under adverse conditions, e.g. last minute preparations for selecting students, etc. - all of the problems which typically occur at the beginning of every academic year. And, they observed a class of students, selected because of their history of delayed academic or socially descriptive behavior come under control of the contingencies of reinforcement as the summer progressed.

The major purpose of in-field evaluation for this phase of the project was to determine the extent to which teachers implemented the skills they were taught. The focus of the summer program was on contingency management. Eleven of the thirteen teachers showed evidence of an attempt to incorporate some of the procedures in their classrooms. Two classrooms were structured with separate task and reinforcement areas. Systems for disbursement of tokens for a variety of reinforcers were found in seven classrooms. Task cards or work folders were used in five classrooms.

There was limited documentation that other skills were incorporated in the teachers' classrooms. No evidence was shown that teachers wrote objectives for children in a behavioral format. Few, if any, took advantage of the resources available to them through the local instructional materials center. Only one teacher implemented a specific behavior modification project with a child in her class. There was little evidence that teachers had up-to-date diagnostic information on the functional level of their children in academic (reading and math) areas. While several teachers sat on curriculum selection committees, none utilized the materials analysis guide provided during the

summer training program. Five teachers indicated that they held conferences with parents to list positive attributes of children and twelve indicated they sent examples of good academic performance home with their children. Thus, it would appear that the summer structure had the desired effect, to facilitate the implementation of contingency managed systems. It was apparent, however, that additional training would be necessary to consider the implementation to be a "model replication". It was found that although components of the system were incorporated, there were major and minor procedural errors. These were noted, and a subsequent publication "Behavior Modification Is Not..." (Tawney, Middleton and Cegelka, 1973) dealt with strategies to modify common conceptual or implementation errors.

The observation checklist also revealed a variable adoption of other course content. In 1972, for example, the need for behavioral objectives was generally considered irrelevant by practicing teachers, was considered impractical for daily programming, and it is reasonable to state that there was general antipathy toward the notion that such a system for writing behavioral objectives might be a preferred classroom practice. Since the passage of PL 94-142, however, one might likely gain a different response.

The preliminary data sample on teacher-child, child on-task, and child academic performance was helpful in identifying the problems of in-field evaluation, and raised the possibility that there might be an alternate competency evaluation system which would lend itself to widespread usage. That is, originally viewed as a strategy to conduct a practicum evaluation on certification seeking teachers, it opened the possibility that competency based evaluation might be substituted for traditional certification.

The limitations of the Phase I procedures were apparent. Teachers were, of course, prepared for the observation, so it is not surprising that their interactions with children were consistently high, or that children "worked hard" when an observer was in the classroom. Teachers selected the samples of academic performance for their observer, where that was permitted. Still, it was demonstrated that these classrooms were accessible for an evaluation, and that the procedure could form the basis for a rigorous evaluation.

Phase II

Summer 1972

Academic Year 1972-73

Overview

Based on the experience during Phase I, procedures for this phase were modified. An additional objective was included in the continuation request, to conduct pre-evaluation of new students entering the summer certification program in 1972. That objective was not completed however, due to lateness in notification of funding.

Several changes occurred between the 1971 and 1972 summer session. Major changes are described here, and the procedures for conducting the major activities of the project are not repeated.

First, students seeking certification in educable and trainable retarded were included in the program. Thus, the "TMR methods" course was also taught as a contingency managed class. Second, the university program for summer practicum work was terminated due to lack of funding, and a seminar in lieu of student teaching was offered in its place. The project continued to support a small demonstration class, located on campus, and students in both methods courses engaged in observations there. This change required students in both methods courses to engage in observations there. This change required students to seek out children in the community for behavior modification and educational programming tasks which created additional logistical problems for many of them and introduced a problem of supervision of those activities.

There were minor changes in course content, structure, and assignment of points. Students in both EMR and TMR methods courses studied common content in certain areas, e.g. writing objectives, using resources, task analysis, behavior modification, contingency management instruction; and area-specific content in assessment and educational programming in content areas. The strategy was similar to that incorporated into the academic year, and subsequently reported by Blackhurst, Cross, Nelson and Tawney (1973). Proctors served students in both classes.

The in-field evaluation was conducted in the same basic form as the first year. Additional information was collected on children's academic performance and additional classroom documentation was obtained. A second evaluation was conducted on four teachers, selected as the highest and lowest performing individuals based on the analysis of the information obtained in the first observation period. These second observations determined the procedure used for competency evaluation required for certification in the final phases of the project.

Outcomes

Methods Courses

Course Grades

The grade distributions for both courses are shown in Table 9 and 10.

Table 9

Grade Distribution- End of Summer
EDS 526 (EMR)

Grade	Number	Percent
A	22	69
B	3	9
C	1	3
I	6	19

These scores represent a lower percent of higher scores than expected, or than demonstrated during the first year. Of the 6 incompletes, three persons did not complete the course, two completed the course with a grade of B, and one with a grade of A.

Table 10

Grade Distribution - Final
EDS 526

Grade	Number	Percent
A	23	72
B	5	16
C	1	3
I	3	9

The final distribution mean more nearly reflects the previous year. Three persons who received incompletes were undergraduate students also enrolled in the course who subsequently completed behavior modification projects during the following academic year.

Table 11 contains the grade distribution for the TMR methods course. Because the number is small, the percent figure was not calculated. As noted, the change in summer scheduling which reduced access to child populations created logistical problems for college students. The three persons receiving grades of E did not obtain credit for behavior modification projects. Two of the three presented nearly identical projects, challenged by the project director under the rules of the University Senate. These students could, but did not appeal that challenge.

Table 11
Grade Distribution
EDS 505

Grade	Number
A	3
B	1
C	1
E	3

Module Posttest Performance - EDS 526

Student performance on module posttests is shown in Table 12. Only performance for the methods course for students in the EMR certification program is tabulated.

Table 12

Module	n	First Posttest %	n	Second Posttest %	n	Third Posttest %
Behavioral Objectives	22	69	9	28	1	3
Contingency Management Instruction	18	56	14	44		
*Assessment	25	86	3	10	1	3
**Language Development	16	84	3	16		
*Reading	10	100				
*Math	21	91	2	9		

* Based on total number taking course

** Students could select 2 out of 3 of these content areas.

Range of Points

The range of points for all persons completing the course in "educable" methods was from 350 to 505.

Summary of Module Activities and Point Values

While there were changes in tasks, and points allotted to specific activities, the basic structure was equivalent to Phase I, and therefore, a summary sheet is not included.

Student Evaluation of the Course

Again, two evaluations were prepared, one at the end of the summer session, and one during the academic year. Responses were similar to the first year's evaluation and are not included here.

In-field Observation

Overview

The observation procedures were elaborated for the 1972-73 academic year. Sixteen teachers from the EMR methods course and one from the TMR course were observed. These teachers were all of those continuing in the recertification program. Undergraduate students were not observed, nor were persons enrolled in the course who were not seeking certification, or who were not returning to the classroom.

Data were collected generally over a 5 day period, under the following conditions. The observer, when possible, talked to the teacher (T), either on the first day of observation or on the second day. The observation schedule and the methods of data collection were explained. Samples of each aspect of the observation packet were provided to the T. Usually, the teachers used free periods to ask further questions.

The observer requested the following list of materials from the teacher: lesson plans, behavioral objectives, records of individual behavior change, recent assessments, progressive records of children's skills, a backlog of children's work, individual and/or class schedule, and samples of home reports. These data were transcribed on the recording booklet, and samples of specific data were retained. If the teacher kept no records, this was noted on the record form.

The classroom was examined for relevant components of a contingency-managed system (reinforcement menus, time-out area, reinforcement area, token economy, etc.). Where they existed, the actual material was copied, or described on the recording form.

Four basic types of data were obtained, a record of children's on-off task behavior, a record of teacher-child interaction, evaluation of children's academic performance and additional documentation of specific instructional activities. These data were collected in the following manner.

The observer entered the classroom and seated herself in an unobtrusive spot, usually at the back of the classroom. If the observer entered the classroom during a break, on the first day of observation, she requested the teacher's help to list the children's names on the data sheet. If this was not possible, the observer coded children by seat and row; then filled in children's names later in the day. Children's on-off task behavior was collected in the morning when the children were engaged in seatwork and reading groups. On-off task behaviors were more easily observed at this time. Also, fewer children were leaving the classroom for other activities.

Using a stop-watch, each child was observed during 10 seconds on -- 5 seconds off intervals. The total observation period was one hour daily. The number of observation intervals was determined by the number of children in the class. At the end of the hour, the data was tabulated for percent of on-task behavior of the class as a whole, as well as percent of on-task behavior for each child.

Teacher-child interactions were recorded in a similar manner. The observer collected this data in the same time period each day when the teacher was most often engaged in direct interaction with the children (e.g. math period). Teacher-child interactions were recorded continuously for 60 minutes. The number of responses in each category were tabulated.

Data on individual academic performance was collected on a sample of children. If a child was absent repeatedly, another child was selected. Samples of academic performance were collected by observing selected children during reading or math periods. When possible, children were observed without their knowledge. However, this was not feasible in many instances. When these group observations could not be conducted, children were assessed individually, outside of the classroom setting.

In reading, for example, the observer took the child to another setting and asked the child to read his current daily assignment, as he would have done in a reading group. A 5 minute sample of reading behavior was collected. The level of the reading material was recorded and the following were tabulated: words per minute, errors per minute, types of errors, and percent of words read correctly. Samples were collected on all children who were requested to read.

When available, the observer collected and evaluated a backlog (20 days minimum) of a child's daily work in all content areas. The material was evaluated when possible to determine the level of skills completed in each area (e.g. the child could add columns of 2 place numbers but could not borrow (regroup in subtraction). The papers were graded if necessary and graphs were constructed showing the days the child performed at 90% correct or better. Xeroxed copies of all material were placed in the teacher's evaluation folder.

When the observation period was completed, all of the data collected was made available to the T. if she wished to see it. The teachers often attempted to discuss the data during free periods, lunch, or at the end of the day during the observation period. The observer responded to the teachers' questions in a neutral manner.

Teacher Performance Profiles

Overview

In the following section, the data from the planned week of observation are presented. A performance profile is presented, in graph form, for each teacher. Although five day observations were planned, scheduling problems, teacher illness, school closings and other factors reduced the observation period for some teachers. Similarly, although teachers were expected to provide a sample of child performance for an extended period of time, not all of them did so. Some teachers regularly returned school work to their students, and had none available for evaluation. Others provided extensive information. All of the data points which could be verified are included.

A profile is provided for each teacher, identified by a three unit code, e.g. 72-00-000. One graph contains the percent of on-task behavior for students, the percent of appropriate teacher responses to appropriate child performance, and the percent of appropriate teacher response to inappropriate child behavior. Child performance on academic tasks is shown on a second graph in the profile. The percent of correct responses in the work sample is plotted, and the instructional area is noted.

Twelve of the seventeen teachers did not have sufficient data on child performance. Their on-off task and intervention graphs are clustered together.

Insert Set of Graphs Here

Commentary

Each of the measures shows variability within and among teachers. In contrast to the Phase I observation, when teachers and students were very much on their best behavior, Phase II data appear to represent a more realistic view of the classroom environment. On-task behavior is generally high, with some exceptions. Teacher-child interaction is extremely variable. As shown, in most cases, appropriate teacher response to appropriate and inappropriate child behavior accounts for a high percent of the total interactions during the defined observation periods. Where the two percent figures do not total 100 percent, the remaining percent is inappropriate teacher behavior, generally attending to children's inappropriate behavior.

The data samples on children's academic performance indicate that some teachers provided little data while others provided extensive data. The graphs illustrate the extent to which teachers were successful in their attempts to program so that their students would respond with a high percent of correct responses. The data which were available contain extremely variable patterns of responding. Overall, the percent of responding at a high accuracy level (90%) is low. In those few cases where extensive records were available, the variability across time and the lack of percent correct responding were instructive to project staff.

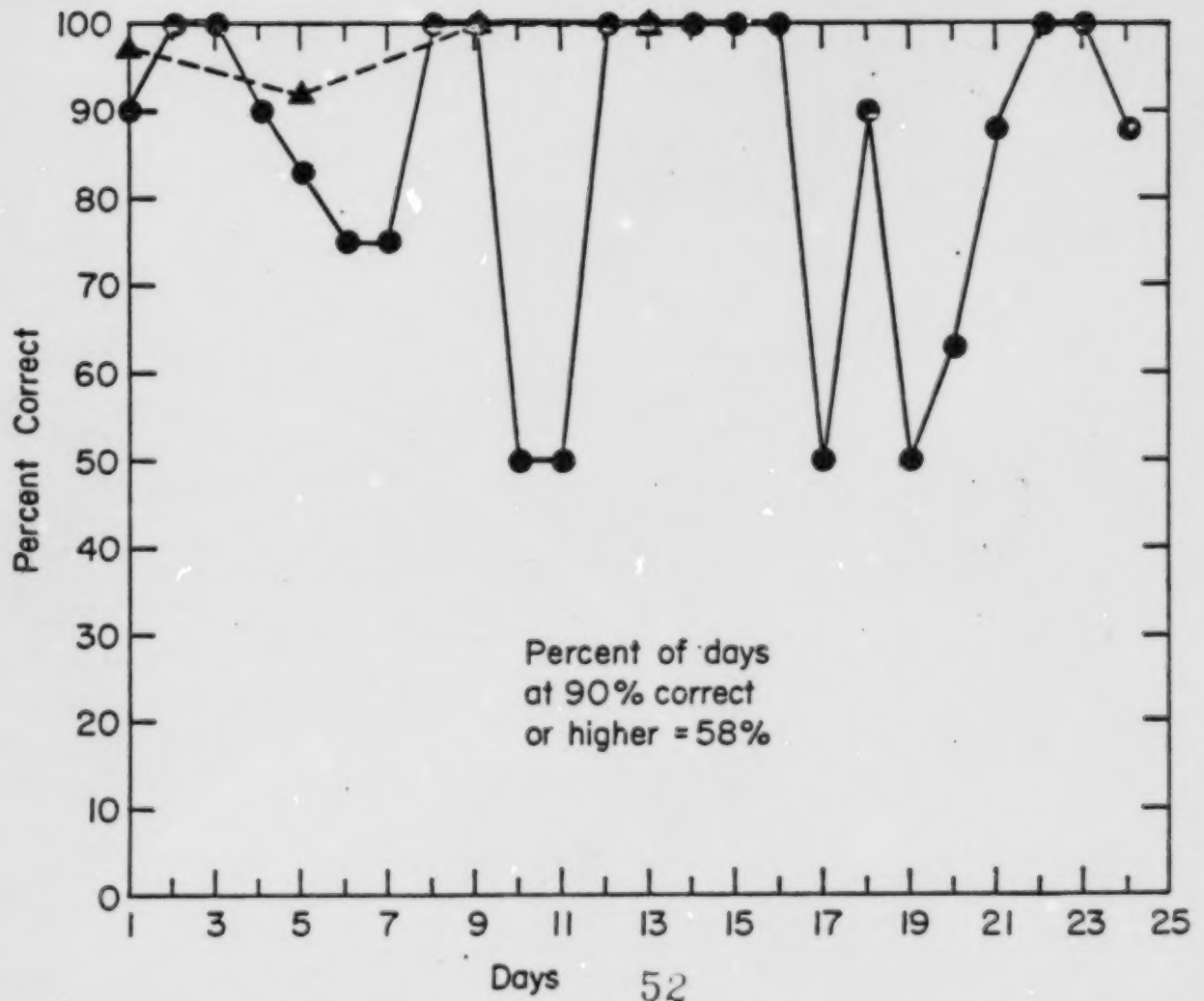
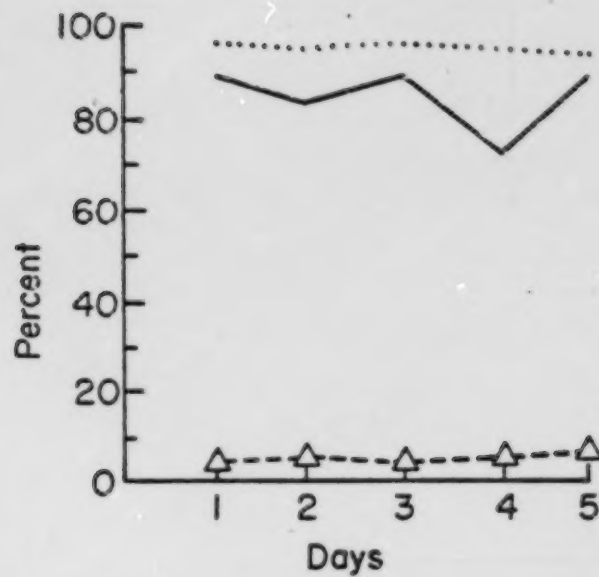
Legend for graphs

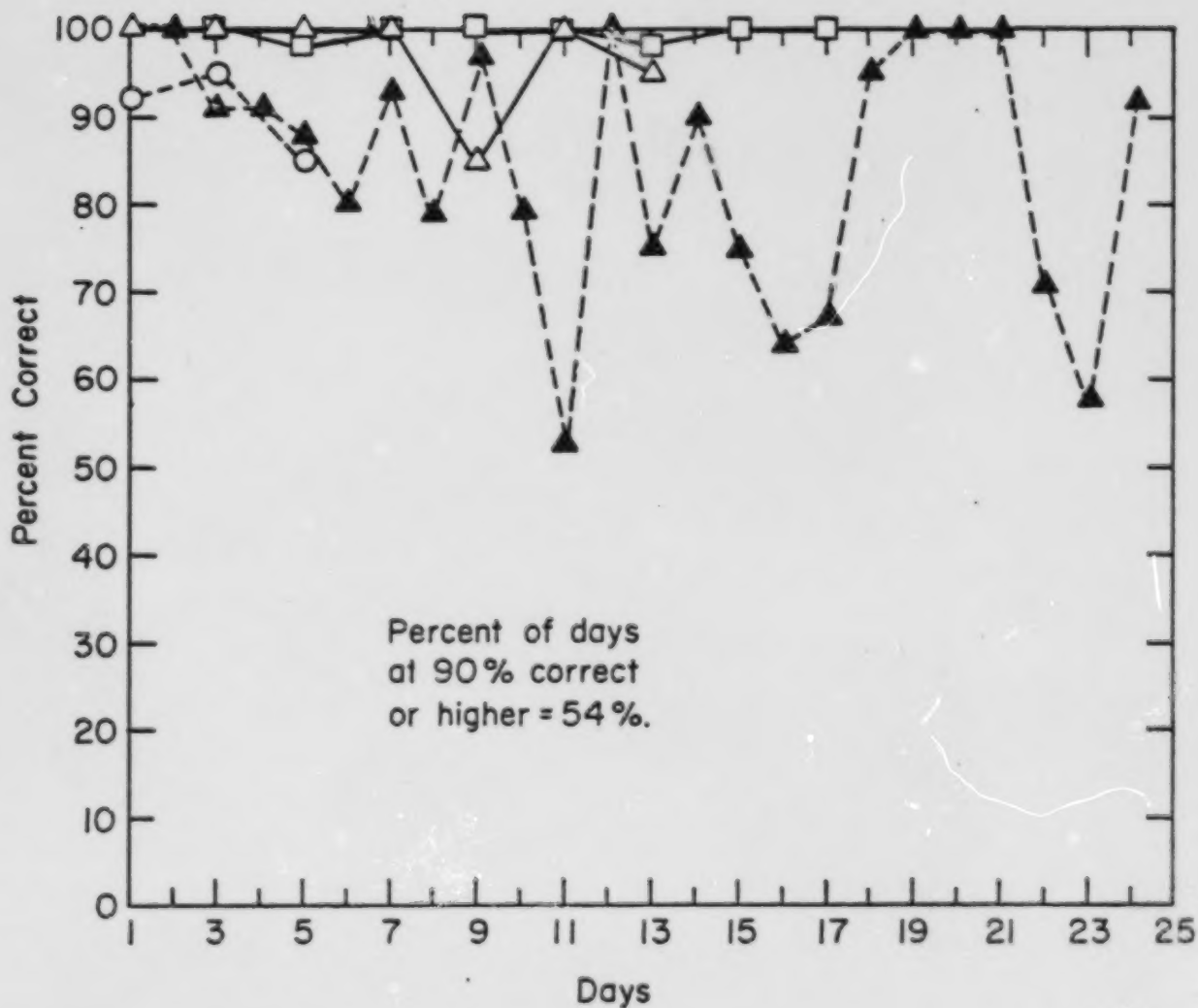
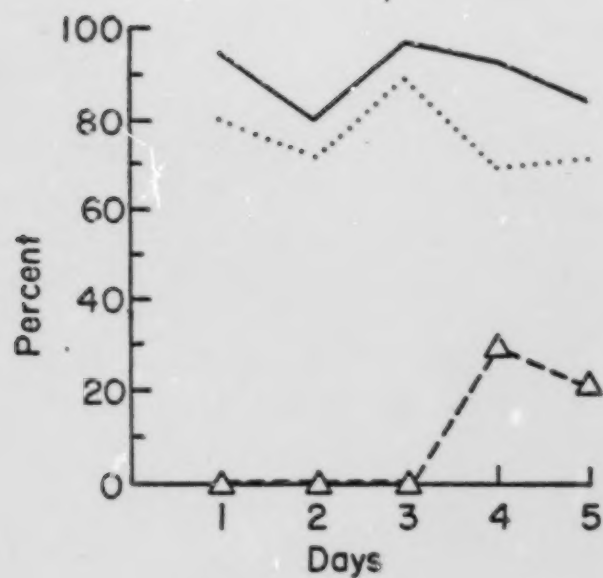
A. On-task and teacher child interaction combined graph

_____	represents child on-task behavior
.....	represents teacher's appropriate responses to appropriate child performance
△-----△	represents teacher's appropriate responses to inappropriate child performance

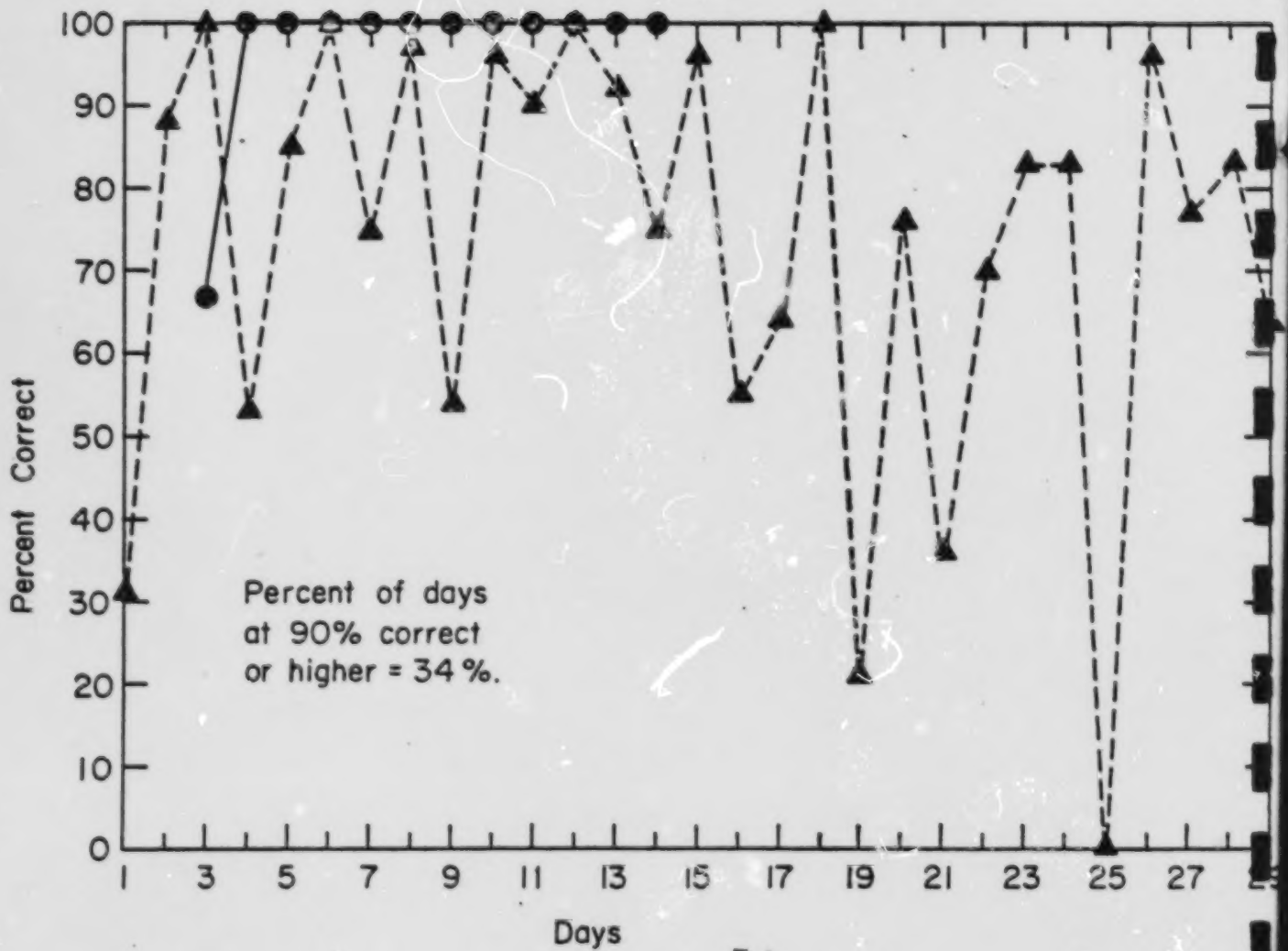
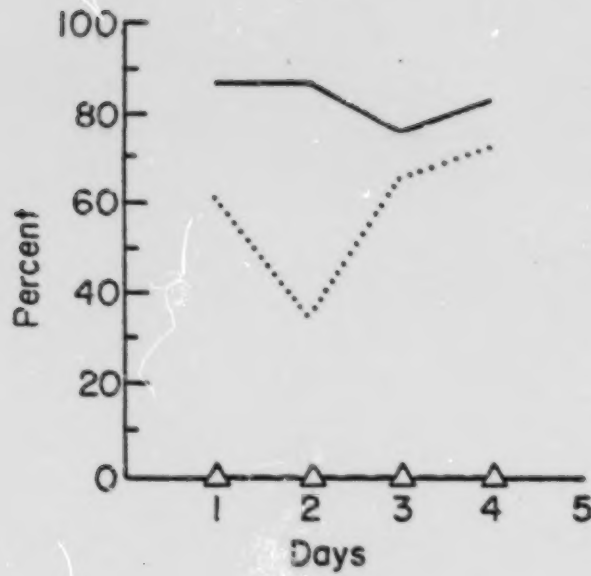
B. Academic work

●-----●	Reading
▲-----▲	Math
○-----○	English
○--○---○	Health
△-----△	Spelling
□-----□	History

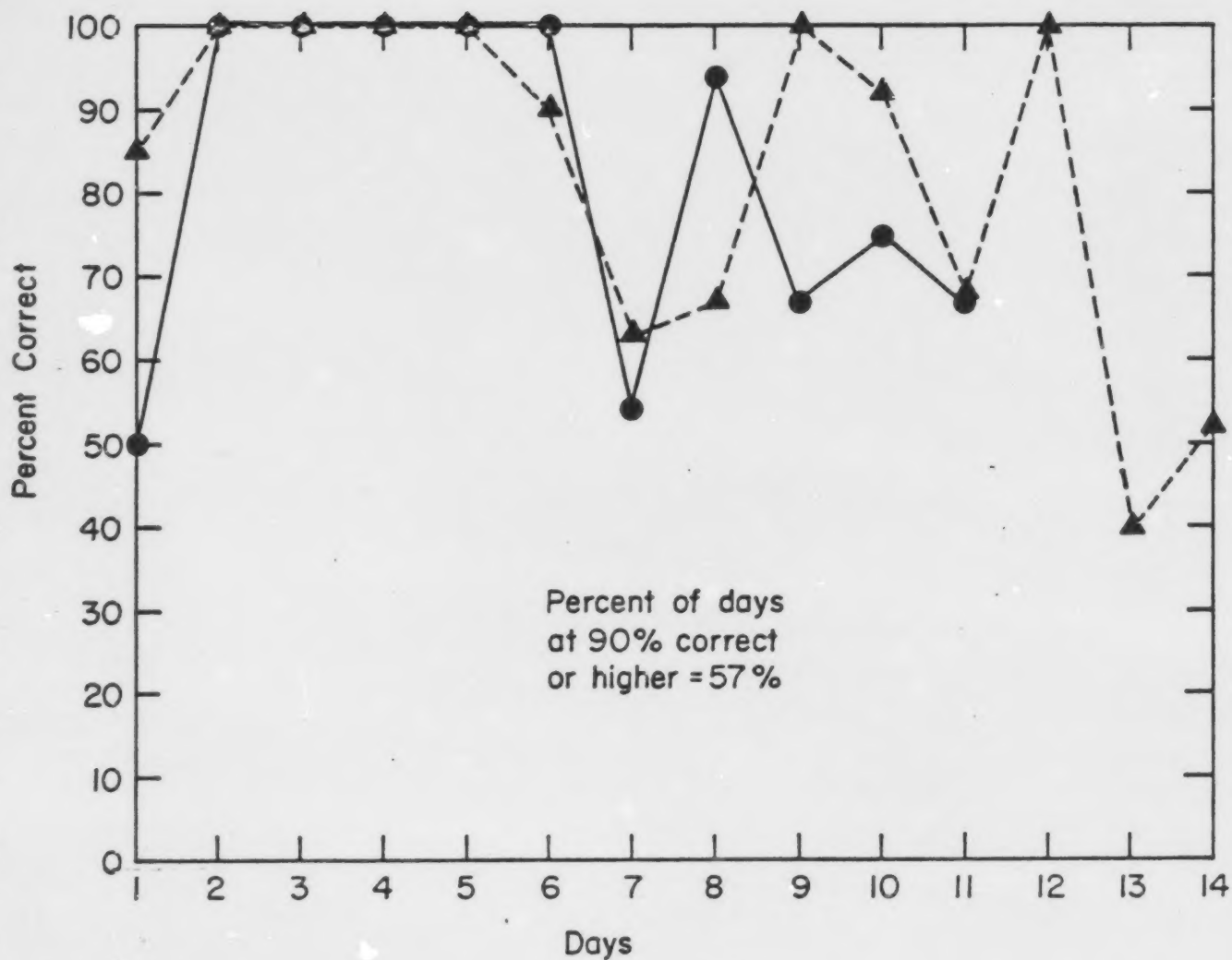
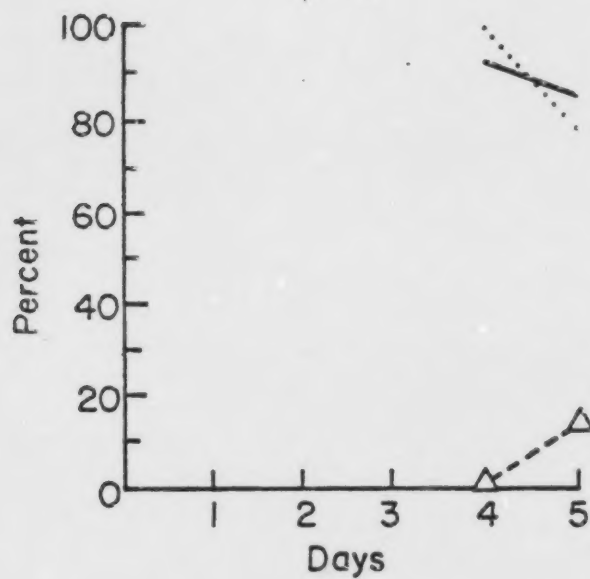


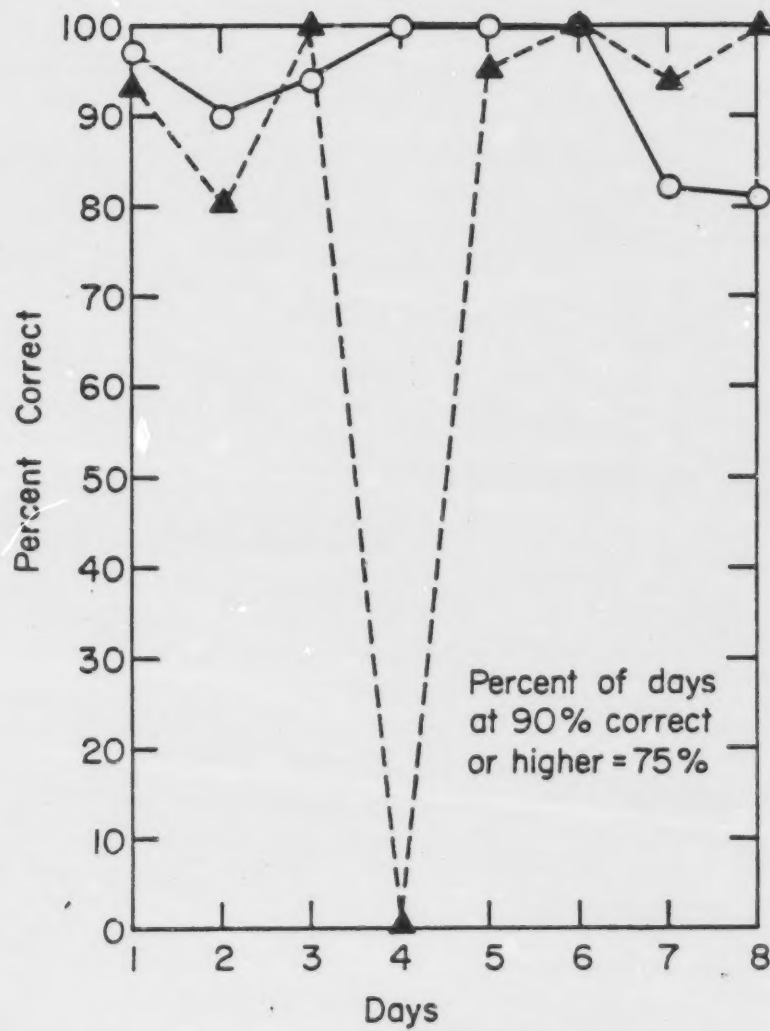
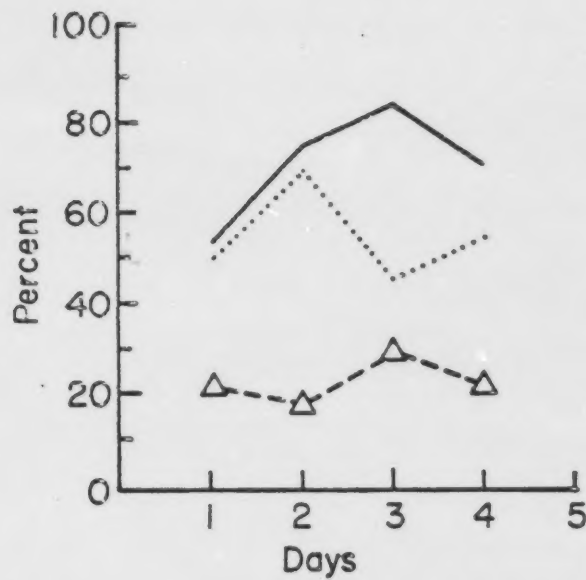


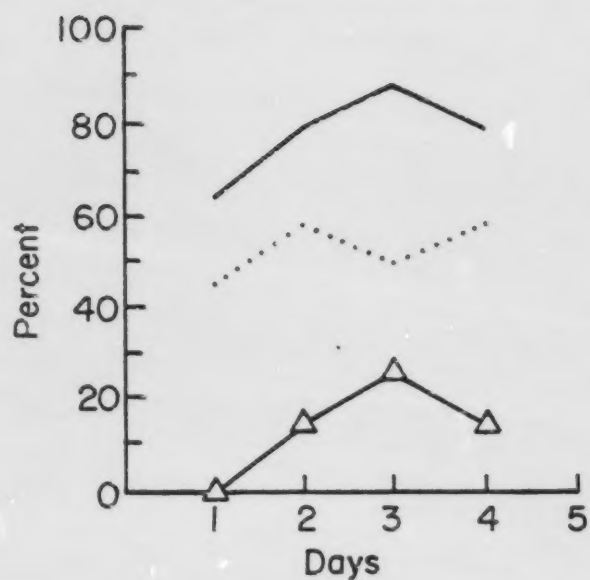
72-12-90



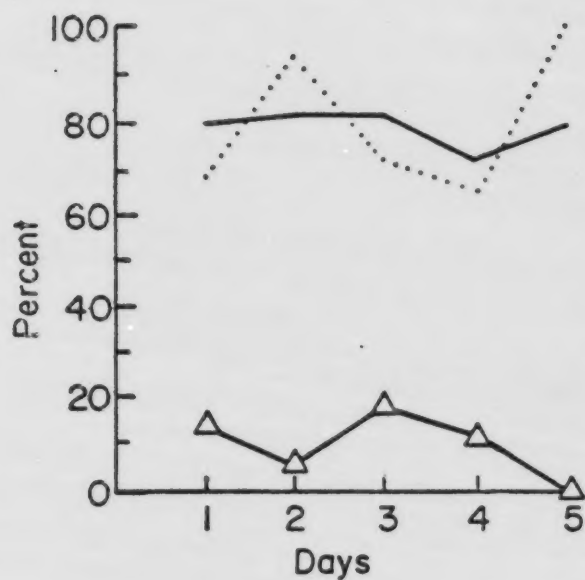
Percent of days
at 90% correct
or higher = 34%.



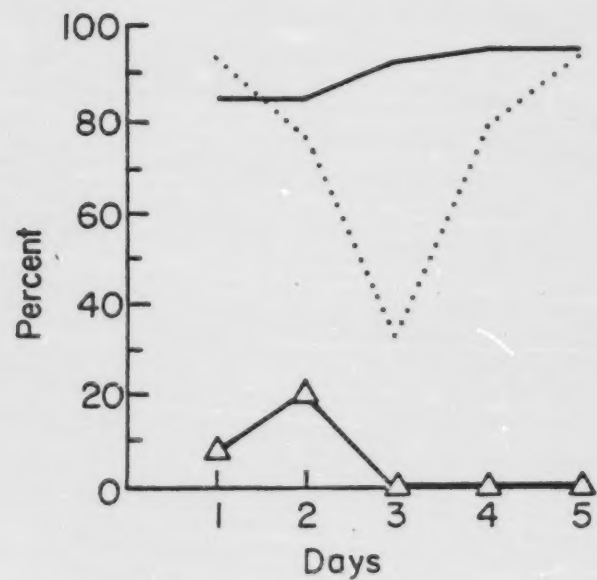




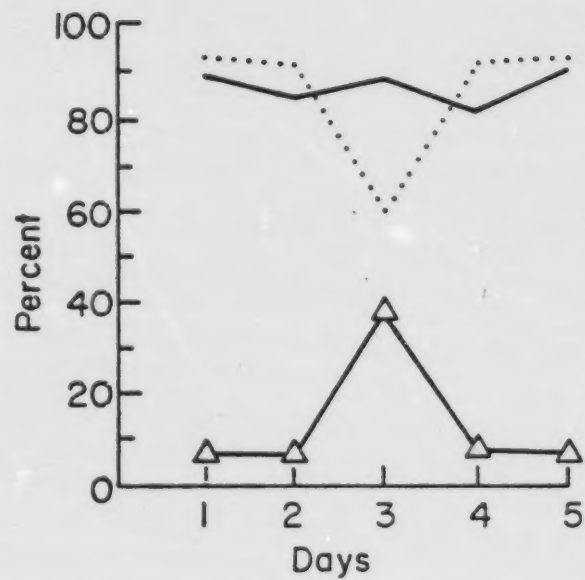
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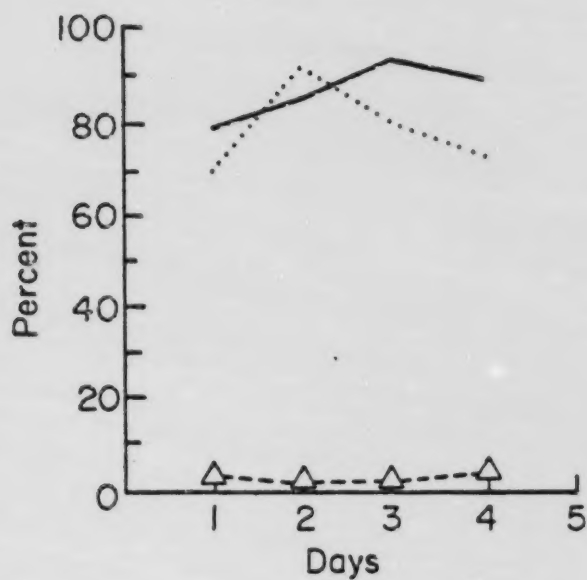
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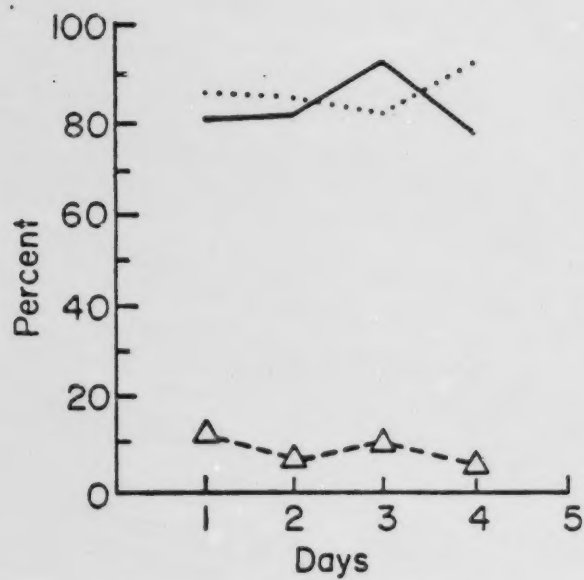
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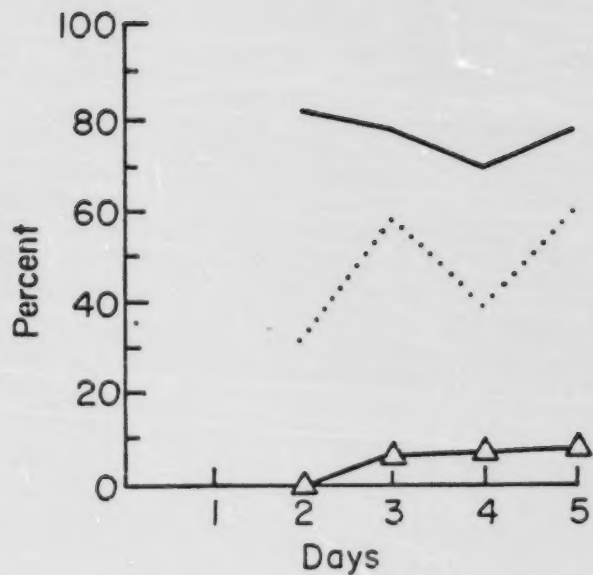
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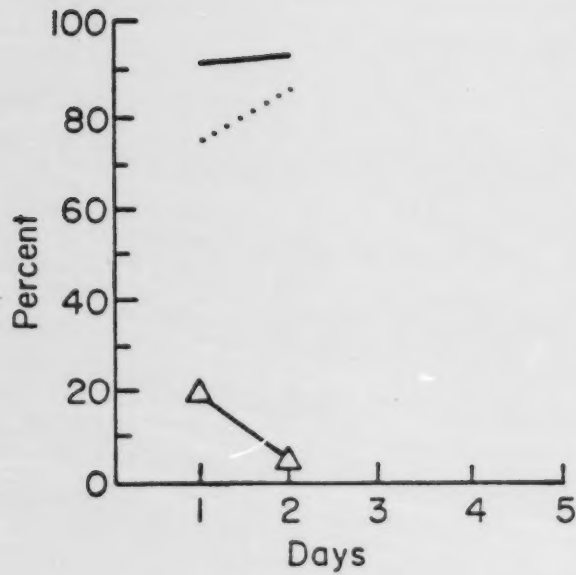
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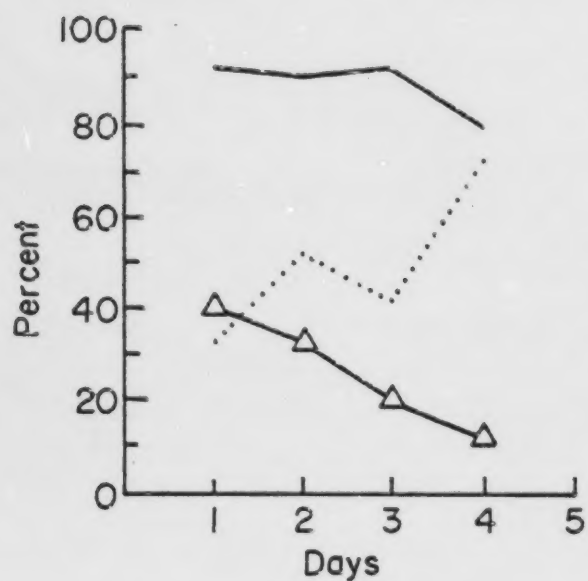
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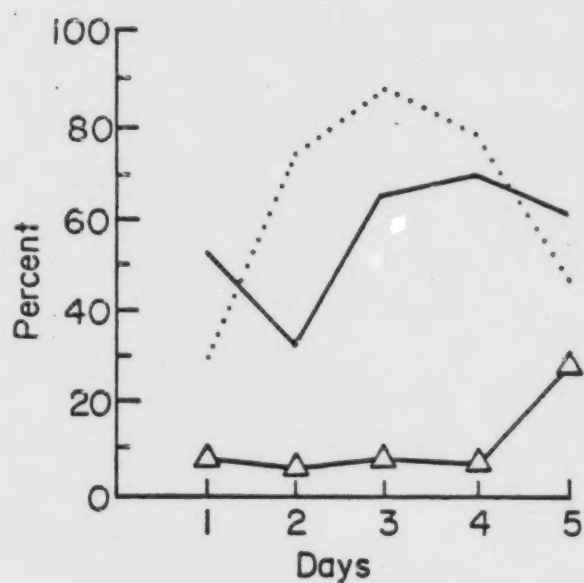
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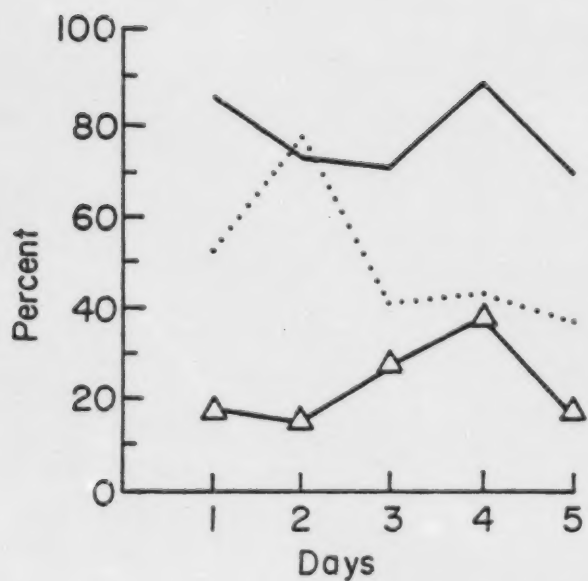
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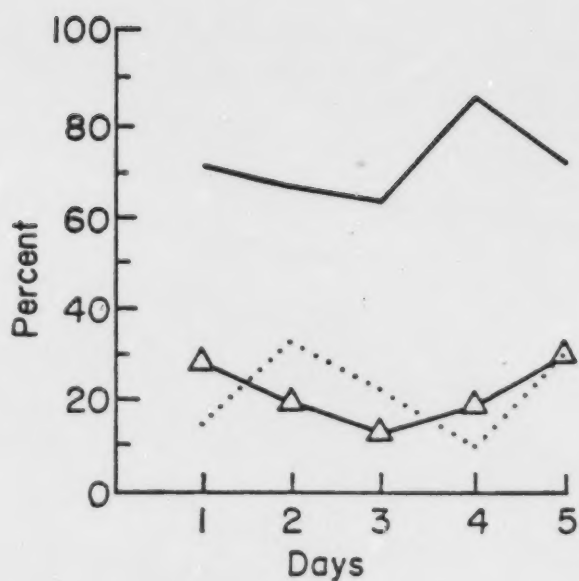
72-1-75



72-11-90



72-83-64



72-43-14

Children's Oral Reading Performance

In thirteen classes, it was again possible to collect samples of oral reading, under the conditions described in the procedures section. Those data are summarized in Table 13.

Table 13
Subject-by-subject Performance on
Individual Reading Assessments

Teacher Code	Length of Sample (Minutes)	Number of Words Read	Rate (words per minute)	Percent Correct
72-12-90	5	430	86	95
72-62-83	5	91	18+	88
72-1-111	5	279	55+	92
72-51-12	5	294	58+	90
72-56-25	5	208	41+	92
72-3-30	6	112	18+	68
72-1-75	5	288	57+	53
72-00-00	7	448	64	100
72-28-120	5	297	59	94
72-33-66	5	372	74+	97
72-43-14	7	371	53	86
72-11-90	5	394	78+	94
72-83-64	8	280	35	94

Classroom Structure and Program Planning

The basic checklist form used in Phase I was again utilized in Phase II.

The outcome is shown in Table 14.

Table 14
Observed Components of Contingency
Management Systems in Teachers Classrooms

Component	Present	Absent
I. Physical environment		
Separate task and reinforcement areas	2	15
Task and reinforcement areas combined in the classroom	8	9
Time out area adjacent to classroom	3	14
Central work table for students' daily assignment	3	14
II. Additional personnel available		
Paid aide	4	13
Volunteer aide (adult)	4	13
Student aide		
Member of class	5	12
Member of another classroom	5	12
Another teacher	0	0
III. Reinforcement system		
Reinforcement menu	3	14
Tokens	8	9
IV. Types of reinforcers		
Highly preferred academic tasks	0	17
Privileges (free time, time away from classroom, drinks, bathroom privileges, leadership roles--including peer tutoring, etc.)	7	10
Non-academic tasks or activities (games, puzzles, etc.)	7	10
Consumable or nonconsumable tangible reinforcers (candy, toys, games, puzzles, clothing, etc.)	7	10
V. Instructional System		
Individual daily assignments for each child	9	8
Task cards or work folders	2	15
Individual child tutoring by teacher	12	5
Contingent sequencing of academic tasks	0	17
VI. Contingency management procedures		
Observable classroom management rules (written on blackboard, written statements for each child, vocal statement by T in presence of observer)	6	11
Contingent disbursement of tokens by T or other	6	11
Immediate correction of incorrect child responses on academic tasks	7	10
Specified token exchange periods	6	11
Observable group behavioral control procedures (use of timer to obtain free time, etc.)	2	15

Data were collected to determine the extent to which other course content areas were incorporated into the teacher's repertoire. It was found that:

<u>Content Area</u>	<u>Observation</u>
Behavioral Objectives	Of the 17 teachers, 3 had no lesson plans, 13 had weekly lesson plans, 1 had daily lesson plans and none had lesson plans broken down on an hourly basis. No teacher had minute-by-minute lesson plans for children, and one teacher had specific sets of lesson plans for each child. Students were taught to write objectives which followed the Mager format (condition-behavior-criterion). No teacher followed the format; 1 teacher used a format which contained a behavioral statement.
Resources	Each teacher was required to obtain a library card for the local Special Education Instructional Materials Center. Six of the 17 teachers indicated that they had access to additional library resources.
Contingency Management	None of the 17 teachers structured a complete contingency management system in her classroom. Twelve of the 17 however, incorporated certain aspects of the system in their classroom.
Individual Behavior Change Projects	Two teachers had evidence of one graphed behavior change project with one child.
Educational Assessment	Examination of the teacher's records showed that a variety of group achievement instruments had been administered. One teacher had information from a diagnostic reading test. Eight teachers had no arithmetic assessment data, five had records of group achievement tests, two teachers had records of her teacher-made test and one teacher had evidence of a related (mastery) test. Two teachers had "written, up-to-date (1 month or less) summaries of each child's level in reading and arithmetic skills".
Educational Programming	Fourteen teachers made samples of child performance data available to the evaluator. Fourteen teachers permitted the evaluator to assess children's functional level in an academic area through the individual assessment procedure.
Parent Conferencing	A set of questions was asked to determine the extent to which teachers communicated positive attributes about children to their parents. Five stated they held conferences to discuss positive child behaviors, twelve indicated they sent "good academic work" home, one indicated that she used graphs of specific behavior

change to document activities to parents, two indicated that diagnostic and educational programming materials were used to document their activities to parents, two stated they referred parents and pupils to other agencies for professional assistance and one indicated she cooperatively worked on behavior change projects with parents.

Discussion of Phase II Activities

The basic purpose of this phase was the same as Phase I, to modify the structure of a traditional summer recertification program. Students again went through a contingency managed methods course, and had the opportunity to observe a small demonstration class on campus, which was organized with the same structure. The program was extended to teachers of the trainable retarded. As in the first summer, while there was an attempt to restrict enrollment to students in the recertification program it was not possible to exclude undergraduates who were "out of sequence" with their regular program, or others who wished to enroll for other purposes. The increased number of students, and the lack of accessible child populations for behavior modification and educational programming tasks created management problems which resulted in lower student performance, as reflected in a lower percent of A grades. Although potential positive reinforcers were built into the point system for the course, it was still considered a high pressure situation. The fact that two students failed the TMR materials course because they did not receive points for behavior modification projects considered by the project director to have been manufactured is indicative of the situation. Undergraduates were required to carry out these projects during the subsequent academic semester and consequently there was an increase in the number of incomplete grades. As noted, three persons did not complete the course, and appear never to have cleared the incomplete grade.

The procedures for in-field observation were modified to yield more information on child performance over time. As in the first observation phase, it was determined that behavioral objectives were not in evidence. No use was made of the University's Instructional Materials Center. Relatively fewer (12 of 17, or 71%) incorporated components of contingency management systems than did students from the previous year (11 of 13, or 85%). Two teachers did present evidence of the use of specific behavior modification projects. Overall, there was increased attention to individual assessment and programming. Also, as in the past, teachers indicated that they had limited access to diagnostic instruments or to sufficient materials within their school system to enable them to program adequately to meet the diverse needs of all their students.

There was increased communication between the observers and the teachers during Phase II. And, the observers looked intensively at the instructional planning and implementation. A second observer was employed mid-year, to insure that all observations would be completed, and that a second round of observations, to collect more child performance data, would be undertaken. Both observers had extensive previous experience, and were able to elicit from the teachers statements which accurately reflected a more complete analysis of instruction, e.g. lack of knowledge to teach reading, or to program adequately in that area, inability to coordinate assessment and individualized planning, lack of knowledge

of math skill sequences, lack of continuity in planning increasingly more complex educational tasks or in presenting instruction continuously until concepts were learned. This information was used to plan the next educational experiences for these teachers, as described in the next section.

The apparent lack of planning and record keeping was reflected in the type of information which teachers provided for the observers. In many cases, the material was not dated, and there was no evidence that a collection of presumably sequential materials had been presented in any easy to hard sequence. Because of these difficulties, data on nine children are reported, although fourteen teachers provided information for analysis.

A second evaluation was conducted with eight teachers, judged to be best or worst, based on data obtained and their evaluation of instructional programming skills. Not reported here, these larger samples provided additional feedback for internal use, and advanced the procedures for the next phase, evaluation for certification purposes.

Phase III

Summer 1973- Academic Year 1973-74

Summer 1974- Academic Year 1974-75

Overview

Two academic year periods are reported in this phase; representing a major shift in activities. The project staff worked directly with the students who had been enrolled in the methods course in 1972, and observed during 1972-73. Project staff provided consultation to the faculty responsible for the methods courses, but they were not taught under the auspices of the project. Instead, project staff assumed responsibility for the seminar in lieu of student teaching; initiated when the summer demonstration school had been dropped. An arrangement was effected with the state department of education, and with the students, to award an incomplete grade at the end of the summer, then to conduct the evaluation during the academic year, and award a grade, and certification, when students met criterion on the competency based evaluation system. Those procedures are described in detail in the next section. The same procedure was used during 1974-75 with a second group of students. Finally, an objective was added to prepare video training packages, to use in the field, with a video simulator under development by the project director. That activity was not staffed, hardware development is still incomplete, and while a fifth year continuation was requested to develop a modified set of products, it was not approved and that objective was not met.

The 1973 Summer Seminar in Lieu of Student Teaching

This course consisted of a six hour block, previously "observation" and "practicum" experience, or graduate level student teaching. Traditionally, students who completed these activities had also completed the 18 hour certification program. Upon successful completion of these activities, the University forwarded their credentials to the state, and they received their certification. When the seminar activity was substituted, the same situation prevailed, except that while limited student teaching was accomplished under the earlier plan, it was now possible to receive certification through this six hour course block.

During the 1973 summer session, responsibilities were shared among a doctoral student who was responsible for the "observation" component, the project in-field evaluator, and the project director. Students received credit for the three hour observation but, as noted, received an incomplete grade for the other three hour block. This strategy made it impossible to receive certification until that grade was cleared. It was possible for the teachers to return to their classrooms for one academic year, and teach until the certification was obtained.

The content of the six hour block was based on the teacher's needs, as determined by the in-field evaluators during the previous academic year. Course instruction centered on those skills which were not observed in the field.

Table 15

Major Tasks for the 358/612 Seminar

Module Title	Activities
Data systems	Learn data systems to be used on teachers by in-field evaluators during the competency evaluation. Develop data systems for recording child performance to document sequential skill acquisition over time and increasingly more complex tasks
Academic Programming	Obtain copies of achievements tests appropriate to students' ability level. Prepare individual reading inventories. Prepare individual arithmetic inventories. Prepare skill sequencing lists Develop chart/graphing systems Write a strategy, and obtain all materials for pre-assessment of children in September in teacher's own class Prepare teaching packages representing four approaches to reading instruction Prepare teaching packages in appropriate levels for math instruction. Prepare teaching packages in science, social studies and spelling Prepare scripts for teaching simulated lessons in specific content areas Develop a 180 day lesson plan outline for one student. Develop a coding strategy to present data for competency evaluation to project staff

Table 15 (Cont'd)

Module Title	Activities
Behavior Modification	Prepare plans for establishment and maintenance of academic and social behaviors. Discriminate appropriate and inappropriate behaviors, on teacher-child interaction scale used for in-field evaluation.
Structuring the Learning Environment	Prepare plans utilizing community resources in the development of a contingency managed classroom

Each of the products which was prepared during the summer could be incorporated in the teacher's own class in the fall. Many tasks were required to provide the data base for the competency based evaluation system. That is, the evaluation instruments and procedures were described, and systems were set up to enable the project evaluator to determine if criterion had been met.

Evaluation Procedures

The first step in the evaluation process began during the summer session. The competency based evaluation system was described, students were familiarized with the instruments, the performance criterion was stated, and students were taught systems to present data to project staff for evaluation. Then, an evaluation schedule was prepared for each teacher before the end of the summer session.

An initial five day visit was scheduled for each of the teachers after they had sufficient time to organize their class and to obtain the requisite data sample. The basic observation procedure was similar to that reported in Phase II. That is, the evaluator:

1. Recorded teacher-child interaction daily, for approximately an hour, each day of the visit.
2. Recorded children's on-off task behavior during defined work periods, utilizing a 10 second on, 5 second off period for all students in the class.
3. Collected a thirty day work sample from a random sample of students representing approximately fifty percent of the class.

Data was brought back to the project site, and scored. Teachers meeting criterion on the initial visit were approved for certification. Those who did not meet criterion received remedial assistance during subsequent visits, and additional data samples were collected. Remedial assistance was offered until students met criterion, if they chose to accept it.

Criterion Measures

The parameters of the evaluation were described in the first section of the report. They are reported here, and the criterion is stated:

1. Do you interact positively (humanely) with your students?

This question was addressed with a scale which recorded teachers' responses to child behaviors. Teachers were expected to demonstrate 90 percent appropriate teacher response to child performance over the total number of days in the sample, in order to meet criterion on this measure.

2. Do children work efficiently when you request them to do so?

A sample of on-off task performance was obtained during teacher defined work periods. To meet criterion, children were to be on task 80 percent of the time for each of the days observed.

3. Do children demonstrate positive change in academic behavior, over time and over increasingly more complex tasks?

To answer this question, a random sample of 50 percent of the children in the class was identified. A thirty day sample of work was obtained in academic content areas, which included reading and math, and other class appropriate content areas. Of the total work sample:

- 90 percent of the students were required to demonstrate
- 90 percent correct responding on
- 90 percent of the days (27 of 30) in the total sample

Where criterion was not met, teachers supplied additional data, and additional visits were conducted until there was a sufficient data sample with criterion performance.

Outcomes

Of the thirteen teachers who went through the entire evaluation process, twelve received certification through this program. One teacher did not receive certification, was apparently separated from employment subsequent to the evaluation but, for reasons unrelated to the project, and apparently dropped from sight. A recent search of teacher certification files in the state department of education indicates that that person did not complete a certification program at any other institution.

Of the twelve teachers receiving certification, two presented data which indicated performance below, but near criterion. Because of the experimental nature of the program, and because of ambiguities in interpreting some child performance records, these individuals were certified with a notation that performance was considered marginal, and that additional remedial assistance would be offered during the 1974-75 academic year, if requested. Neither requested additional remedial assistance.

While the majority of teachers had child performance data available for inspection, some did not. Others presented data which was not dated or coded as specified. In other cases, below criterion performance was demonstrated. Consequently, the evaluation process was conducted throughout the school year, and a second evaluation was employed mid-year to assist with the evaluation effort.

The series of tables indicate that on-task behavior was uniformly high. Teacher-child interaction data show variability. Criterion was marginal, or not met in some circumstances, but was sufficiently close so that, when child performance data was available, deviations were accepted.

Child performance data is presented for the seven teachers whose complete data file was kept. This set includes one of the two teachers whose performance was considered marginal, but who was nevertheless certified under this experimental program. Each table includes the percent of days above criterion, and the range of scores for each student. Again, there is a uniformly high rate of responding.

Table 16

On-Task Behavior
1973-74

Teacher Code	Days										$\bar{X}$ # of days
	1	2	3	4	5	6	7	8	9	10	
73-32-30	99	98	96	97	96	100					98
73-12-90	98	100	100	98	94	97					98
73-16-73	94	93	94	96	98						95
73-52-21	98	97	100	100	95	96	96	94	97	96	97
73-33-66	100	100	100	95	93	93	83	95			95
73-101-12	95	100	99	94	90	90	93				94
73-143-30	95	98	99	98							98
73-22-119	85	93	89	93	91	90	90	100	99		92
73-13-11	98	98	95								97
73-1-111	97	95									96
73-51-12	100	99	95	98							98
73-122-12	91										91
73-12-111	94	95	96								95
73-18-75	94	93	93								93
73-68-30	96	96	98	96							97
73-13-111	97	94	93								95

Table 17

Teacher-Child Interaction
1973-74

Teacher Code	Appropriate - Appropriate %								Appropriate - Inappropriate %							
	Days								Days							
	1	2	3	4	5	6	7	X	1	2	3	4	5	6	7	X
73-32-30	100	79	95	96				93	0	14	50	0				16
73-33-66	52	61	63	74	93			69	31	30	20	13	0			19
73-16-73	96	95	92	100	100			97	0	0	0	0	0			0
73-143-30	100	97	93					97	0	3	2					2
73-13-111	100	100	98					99	0	0	2					1
73-52-21	93	96	97	94	97	94	99	96	5	4	3	7	3	3	1	4
73-68-30	62	88	86	100				84	37	12	14	0				16
73-22-119	97	96	85	90	85	80	93	89	3	4	6	5	11	15	0	6
73-18-75	77	82	86					82	16	11	7					11
73-12-111	87	84	86					86	11	13	11					12
73-101-12	41	72	57					57	17	19	33					23
73-12-90	88	88	91	98				91	9	12	9	0				8
73-122-12	100							100	0							0
73-51-12	90	93	95					93	10	7	0					6
73-1-111	100							100	0							0
73-13-11	98							98	1							1

Table 18

Child Performance Data
Teacher Code 73-30-32

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Math	1	30	29	97	84-100%
	2	27	27	100	90-100%
	3	27	27	100	92-100%
	4	26	24	92	82-100%
	5	26	25	96	88-100%
	6	34	32	94	80-100%
	7	24	22	92	76-100%
	8	30	30	100	90-100%

Table 19

Child Performance Data
Teacher Code 73-73-16

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Vocational Skills	1	27	27	100	90-100%
	2	15	15	100	93-100%
	3	21	21	100	90-100%
	4	28	27	96	88-100%
	5	23	23	100	90-100%
	6	30	30	100	91-100%
	7	23	22	96	88-100%
	8	22	22	100	91-100%
	9	15	15	100	91-100%
	10	20	19	95	81-100%
	11	22	21	95	84-100%
	12	22	22	100	91-100%
Math	1	19	19	100	91-100%
	2	23	23	100	94-100%
	3	19	19	100	90-100%
	4	26	26	100	93-100%
	5	23	23	100	90-100%
	6	31	31	100	90-100%
	7	22	21	95	89-100%
	8	25	25	100	90-100%
	9	10	10	100	90-100%
	10	17	16	94	86-100%
	11	19	19	100	90-100%
	12	21	21	100	90-100%
Reading	1	26	26	100	90-100%
	2	23	23	100	90-100%
	3	21	21	100	93-100%
	4	32	32	100	90-100%
	5	23	23	100	90-100%
	6	33	33	100	90-100%
	7	24	23	96	89-100%
	8	28	28	100	91-100%
	9	14	14	100	90-100%
	10	22	22	100	90-100%
	11	22	22	100	92-100%
	12	26	26	100	90-100%

Table 19 (Cont'd)
73-73-16

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
English	1	22	22	100	90-100%
	2	8	8	100	93-100%
	3	19	19	100	90-100%
	4	26	26	100	92-100%
	5	20	20	100	92-100%
	6	28	28	100	92-100%
	7	20	20	100	93-100%
	8	19	19	100	92-100%
	9	7	7	100	90-100%
	10	17	17	100	90-100%
	11	14	14	93	89-100%
	12	14	14	100	93-100%

Table 20

Child Performance Data
Teacher Code 73-12-101

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Math	1	28	28	100	90-100%
	2	27	27	100	92-100%
	3	28	28	100	91-100%
	4	28	28	100	92-100%
	5	28	28	100	91-100%
	6	25	25	100	90-100%
	7	27	27	100	91-100%
	8	26	26	100	92-100%
	9	22	22	100	90-100%
	10	26	26	100	91-100%
	11	27	27	100	91-100%
	12	27	27	100	95-100%
Reading	1	27	27	100	90-100%
	2	27	27	100	96-100%
	3	28	28	100	91-100%
	4	26	26	100	91-100%
	5	28	28	100	95-100%
	6	5	5	100	90-100%
	7	27	27	100	93-100%
	8	26	26	100	91-100%
	9	28	28	100	93-100%
	10	17	17	100	90-100%
	11	27	27	100	90-100%
	12	15	15	100	90-100%
Spelling	1	28	28	100	100-100%
	2	27	27	100	92-100%
	3	28	28	100	93-100%
	4	28	28	100	91-100%
	5	28	28	100	90-100%
	6	28	28	100	92-100%
	7	28	28	100	93-100%
	8	27	27	100	90-100%
	9	28	28	100	100-100%
	10	28	28	100	92-100%
	11	27	27	100	93-100%
	12	27	27	100	100-100%

Table 20 (Cont'd)

73-12-101

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Writing	1	28	28	100	90-100%
	2	27	27	100	94-100%
	3	28	28	100	90-100%
	4	28	28	100	94-100%
	5	28	28	100	90-100%
	6	8	8	100	92-100%
	7	27	27	100	91-100%
	8	28	28	100	90-100%
	9	26	26	100	90-100%
	10	27	27	100	90-100%
	11	27	27	100	90-100%

Table 21

Child Performance Data
Teacher Code 73-66-33

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Writing	1	20	19	95	90-90%
	2	21	21	100	90-90%
	3	20	18	85	80-90%
	4	20	19	95	88-90%
	5	20	18	90	90-90%
Math	1	20	18	90	90-100%
	2	20	19	95	92-100%
	3	27	25	93	92-100%
	4	20	18	90	90-100%
Reading	1	20	18	90	75-100%
	2	20	19	95	75-100%
	3	20	18	90	88-100%
	4	20	18	90	75-100%
	5	19	18	95	95-100%
Spelling	1	18	17	94	83-100%
	2	20	18	90	75-100%
	3	20	16	80	80-100%
	4	19	19	100	95-100%
	5	20	19	95	90-100%

Table 22

Child Performance Data
Teacher Code 73-12-51

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Math	1	25	23	92	90-100%
	2	23	23	100	90-100%
	3	22	22	100	91-100%
	4	8	8	100	92-100%
	5	17	17	100	92-100%
	6	35	31	89	82-100%
Reading	1	9	9	100	91-100%
	2	3	3	100	95-100%
	3	8	7	88	85-100%
	4	13	11	85	75-100%
	5	8	8	100	90-100%
Spelling	1	7	7	100	90-100%
	2	5	4	80	86-95%
	3	7	7	100	90-100%
	4	2	2	100	95-100%
	5	10	10	100	90-100%
	6	7	7	100	95-100%
Language	1	13	13	100	90-100%
	2	11	11	100	100-100%
	3	15	14	93	75-100%
	4	19	19	100	90-100%
	5	7	7	100	94-100%

Table 23

Child Performance Data
Teacher Code 73-90-12

Area	Student	No. days in sample	No. days above criterion	Z days above criterion	Range of daily scores
Math	1	21	16	76	80-100%
	2	13	11	85	65-100%
	3	17	16	94	84-100%
	4	30	28	93	80-100%
	5	21	19	90	80-100%
	6	25	24	96	90-100%
	7	24	23	96	91-100%
Reading	1	20	18	90	90-100%
	2	25	22	88	89-100%
	3	17	16	94	84-100%
	4	13	12	92	88-100%
	5	11	11	100	100-100%
	6	23	22	96	89-100%
	7	28	24	86	81-100%
Spelling	1	26	24	92	90-100%
	2	25	25	100	90-100%
	3	28	27	96	94-100%
	4	22	20	91	87-100%
	5	21	18	86	84-100%
	6	22	21	95	87-100%
	7	32	28	88	82-100%

Summer 1974 Seminar

Academic Year 1974-75

Introduction

During the 1973 summer session, a new group of students enrolled in the first half of the two summer certification program. As noted, these courses were taught by a department faculty member not associated with the project, with back up materials and staff support. Students enrolled in that program were apprised of the competency evaluation plan. They were presented with seminar content similar to the 1973 course. They received the majority of their instruction from the two in-field evaluators, who drew upon the 1973-74 evaluations to modify course content. Again, the objective was to prepare the students for the evaluation by providing them with explicit data requirements and by developing the materials to enable them to begin the assessment and programming strategies required for "errorless" instructional programs. Seven persons were enrolled in this program. Because of the similarities in course content, no further elaboration of the summer seminar is included here.

In-field Evaluation

Mid-year Change in Contingent Assignment of Grades and Certification

During the previous year, a change in procedures occurred within the state department of education with a subsequent major effort on the project. Reduced to its simplest terms this bureaucratic legerdemain created two types of classroom units, "old" and "new". One type could be staffed only with permanently certified personnel while the other might be staffed with persons with provisional certification, the status of persons in the project. This situation became apparent mid-fall semester, where it was determined that some of the participants were in the wrong type of unit. The consequence to the employing district was that it would lose all state funding for the unit. Therefore, under pressure, the project was required to assign a letter grade (and certification) to persons who were so affected. This change affected four of the seven teachers. With their consultation, a strategy was developed to continue with the evaluation. A grade of C was assigned with the understanding that it would be changed to a grade of A when the competency criterion was met. Since, in the culture of student teacher evaluation, a C grade is commonly considered equivalent to a failing grade, there were reinforcing properties in the removal of the grade. This proved to be the case for three of the four participants. The fourth continued with the evaluation process for a brief period, then dropped from the program.

The cumulative effect of this change is unknown. While one participant dropped from the program, there appeared to be no discriminable differences between the performance between those who did, and those who did not receive

an interim grade and mid-year certification. The change was, of course, instructive to project staff who received yet another lesson in the existence of barriers to innovation.

Outcomes

Each of the six persons who remained in the program completed it to criterion. Data on teacher-child interaction and on-task behavior are presented. All data on child performance for all the students in one teacher's class are presented. As in the first year, this data was returned to the project, scored, then returned to teachers to redistribute to their students.

Table 24
On-Task Behavior
1974-75

Teacher Code	Days					X # of days
	1	2	3	4	5	
74-118-05	100	100	100	100	100	100
74-126-52	100	100	93	98	100	98
74-200-68	100	97	100	100	98	99
74-125-74	96	93	100	100	96	97
74-56-72	100	100	99	96	100	99
74-64-66	98	97	97	95	96	97

Table 25

Teacher-Child Interaction
1974-75

Teacher Code	Appropriate - Appropriate %						Appropriate - Inappropriate %					
	Days					$\bar{X}$	Days					$\bar{X}$
74-118-05	100	100	100	100	100	100	0	0	0	0	0	0
74-126-52	97	100	96	95	100	98	0	0	0	0	0	0
74-200-68	96	100	100	100	100	99	4	0	0	0	0	1
74-125-74	100	100	100	100	100	100	0	0	0	0	0	0
74-56-72	100	100	100	100	100	100	0	0	0	0	0	0
74-64-66	100	100	96	100	100	100	0	0	0	0	0	0

Table 25

Child Performance Data
Teacher Code 74-125-74

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Math	1	25	25	100	100-100%
	2	27	27	100	90-100%
	3	27	26	96	80-100%
	4	27	27	100	90-100%
	5	27	27	100	90-100%
	6	27	27	100	90-100%
	7	27	27	100	90-100%
	8	26	26	100	90-100%
	9	27	27	100	90-100%
	10	27	27	100	90-100%
	11	26	26	100	90-100%
	12	27	27	100	90-100%
	13	27	27	100	90-100%
	14	27	27	100	90-100%
	15	24	23	96	70-100%
	16	27	27	100	90-100%
Spelling	1	14	14	100	90-100%
	2	14	14	100	90-100%
	3	14	14	100	90-100%
	4	9	9	100	100-100%
	5	15	15	100	90-100%
	6	15	15	100	90-100%
	7	16	16	100	90-100%
	8	16	16	100	90-100%
	9	16	16	100	90-100%
	10	8	8	100	100-100%
	11	15	15	100	90-100%
	12	16	16	100	90-100%
	13	16	16	100	90-100%
	14	16	16	100	90-100%
	15	16	16	100	90-100%

Table 26 (Cont'd)

74-125-74

Area	Student	No. days in sample	No. days above criterion	I days above criterion	Range of daily scores
Writing	1	25	25	100	90-98%
	2	25	25	100	90-95%
	3	21	21	100	90-94%
	4	25	25	100	90-96%
	5	25	25	100	91-98%
	6	24	24	100	90-95%
	7	24	24	96	88-95%
	8	25	25	100	91-98%
	9	25	25	100	90-97%
	10	24	23	96	81-94%
	11	24	24	100	90-97%
	12	25	25	100	90-96%
	13	25	25	100	90-95%
	14	25	25	100	90-98%
	15	25	25	100	90-96%
	16	25	25	100	90-95%
Reading	1	27	27	100	95-100%
	2	27	27	100	100-100%
	3	24	24	100	95-100%
	4	27	26	96	90-100%
	5	26	26	100	100-100%
	6	27	27	100	96-100%
	7	27	27	100	92-100%
	8	27	27	100	100-100%
	9	27	27	100	92-100%
	10	27	27	100	95-100%
	11	26	26	100	96-100%
	12	27	26	96	88-100%
	13	27	27	100	92-100%
	14	27	27	100	100-100%
	15	27	27	100	92-100%
	16	27	27	100	92-100%

Table 26 (Cont'd)

74-125-74

Area	Student	No. days in sample	No. days above criterion	% days above criterion	Range of daily scores
Science and Social Studies	1	4	4	100	90-100%
	2	4	4	100	90-100%
	3	4	4	100	90-100%
	4	4	4	100	90-100%
	5	4	4	100	90-100%
	6	4	4	100	90-100%
	7	4	4	100	90-100%
	8	4	4	100	90-100%
	9	4	4	100	90-100%
	10	4	4	100	90-100%
	11	4	4	100	90-100%
	12	4	4	100	90-100%
	13	4	4	100	90-100%
	14	4	4	100	90-100%
	15	4	4	100	90-100%
	16	4	4	100	90-100%

Discussion

On-task Data

This data is uniformly high, among all teachers and across the days of observation for each teacher.

Teacher-Child Interaction Data

Generally, these data show limited variability within and among teachers, who easily met the criterion. The basic categories of behavior were modified only slightly during the project.

The data represent one person's observation. Observers obtained a $> 90\%$ reliability in schools in the local community, then observed classes singularly. For this project, it was sufficient to determine that the coding system could be used with little ambiguity. The system appeared to work well. Styles of interactions were observed which were difficult to record in a limited number of cases, e.g. a teacher might interact with students in a gruff or sarcastic manner. Yet, the tone of the interaction was not malicious or vengeful, and students seemed to accept it as what would be commonly called banter.

Child Performance Data

These data were analyzed to determine that 90% of the students were performing at increasingly more complex tasks over an extended period of time. This was in fact, the heart of the evaluation. Teacher certification was contingent upon demonstration that that occurred.

During this phase, each of the teachers met criterion, although in some instances repeated visits and extensive data samples were taken to meet criterion. A complete data file was reproduced for one teacher, and is presented in Table 26. This individual represented perhaps the highest level of overall functioning as a classroom teacher, and that is reflected in the child performance data.

CHAPTER III

Discussion

This project was initiated to solve a problem unique to the field of special education, recertification of elementary and secondary teachers through summer training programs. Such programs, based on assumptions of competency in already certified personnel, have retrained thousands since the fifties in face of the knowledge that the assumption of competence may be false.

A plan was developed to teach candidates for certification something about contingency managed instruction through models of contingency managed instruction. During the first phase of the project, interest centered on the extent to which teachers utilized this new model and other course information when they returned to their special education classes in the fall. Very soon, the observation procedures took on the appearance of a viable model for the development of a competency based teacher evaluation system. During the latter phases of the project, a system was developed to change the criterion for certification from course work completion to demonstration of a high level of teacher and child performance as described in this report. This discussion section focuses on all phases. Some general issues related to competency based evaluation systems are addressed.

Summer Training and Follow-up Observation

Students entering the recertification program for the first time enrolled in a sequence which included an "introductory", a "characteristics" and a "methods" course. Those who became participants in this project by virtue of their enrollment in the methods course found themselves in an environment which represented a radical departure from their earlier educational experiences. With some modification of schedules for other courses, they were free to observe the development of the contingency management demonstration class. There, they observed the effect of the system on a class of disruptive, presumably mildly retarded children. They saw the varying degrees of control the reinforcement contingencies exerted over each student, observed the mechanics of the operation, and observed data showing an increase in the percent of on-task and work performance. In their methods course, they observed an instructional model very different from the "front and center" of the lecture method. The point system for the course clearly identified the reinforcers in each activity. Contingencies were further emphasized when low or zero point tasks were required to be completed before high value activities could be completed and points assigned. Materials were available for self paced study, with time restrictions on the completion of certain tasks. Seminars on a topic came last, not first; on the assumption that they would be more meaningful to people who had actually read the materials (a tenuous assumption indeed, in a typical undergraduate course). There were proctors available to answer questions, grade tests and provide remedial feedback and/or positive reinforcement. The quantity of work was large, the performance criterion was high and progress statements, in terms of points earned, were publicly displayed. The professor (project director) was observed to be involved in a variety of activities related to management and materials development; when he met with the total group in seminar, his role was defined as a group consultant, not discussion leader.

On the first questionnaire, it appeared that the majority of students felt they did more work in insufficient time in a structure that was entirely new to them. The high number (20 of 23) who reported that they enjoyed the course was a pleasant surprise, in view of the verbal behavior emitted during the summer. The pace, and criterion performance criterion generated a high degree of anxiety. The role of the proctors was at first poorly understood, as was their authority and knowledge. The role of the professor was perhaps least understood of all. Particularly during the seminars, it was difficult to shift out of the lecturer role, and early sessions were not dynamic. When the topic shifted to the philosophical and ethical aspects of behavior modification and contingency management, the situation changed, and a good bit of debate was stimulated. Many were not initially accepting of this new technology, and those who were were not quite sure how to develop a similar program in their home communities. In all, the course was not free from aversive properties, and until students began to demonstrate that it was possible to meet criterion in sufficient time to gain points equivalent to an "A", on each module, there was little confidence that the group would "make it through the summer".

When analyzing the data from the in-field observations, it is important to note that there was no contingency on students to incorporate any specific content in their classes. Contingency managed instruction was presented as a system which could potentially be more efficient and effective for the child population. The attributes of the system were listed, and teachers observed the increased individualization and "freedom" which both they and the demonstration school students experienced. They were told that they would be observed, and their and their districts' permission was sought to enter their classrooms. The objective was to observe the extent to which they incorporated new knowledge in their classrooms.

The data from the observation checklist for the final year students indicated that all but two teachers utilized some component of a reinforcement system or a contingency managed environment. Analysis of individual checklists showed three patterns, e.g. two teachers utilized none of the components, three persons had, or had attempted, to implement total systems, and the remainder used one or more components, but implemented them in such a way that a panel of informed observers would not likely have concurred that they were reinforcers, or effective procedures. The overall conclusion of project staff was that although teachers could verbally describe the concepts and principles, the manner in which programs were implemented left much to be desired. Two classrooms could be described as having dynamic systems, in that most components were implemented, the system changed as the school year progressed, and children were actively involved in the process.

The basic misconceptions, and appropriate remedial strategies were (Appendix E) described in the article appended to this report (Tawney, et al, 1973). While it is true that the operational definition of a contingency is an "If... then" statement, it is also the case that there is a significant difference between a situation where "If a student finishes a math paper, then he can play at the back of the room for an indefinite period" and where "If a student presents a completed (and accurate) worksheet to his teacher, then, within n seconds, he receives a token of specified value which can

then (or shortly thereafter) be traded for a toy or event for which he has stated/demonstrated a desire to obtain. Or, in other words, it was possible for a teacher to claim to use a contingency management system, but, in fact, violate all of the procedures which make up an effective system. When, for example, a teacher tried a system, then dropped it because "students lost interest," it was quite apparent that no dynamic system existed to begin with. These observations pointed out the need for additional training, and verified that, in its present form, the amount of time available to teach these systems was inadequate during the summer session.

The development of planning systems utilizing objectives which met the Mager (1962) criterion was the least used skill. The discrepancy between the specificity of the described format, and teacher's usual practice was so great that no teacher incorporated this new skill in her teaching repertoire. It has been noted that then there was no contingency to encourage such usage by project staff or by school systems. The teacher consensus seemed to be that, while desirable, it was not feasible to develop task or objective cards which only required the teacher to fill in a minimum amount of information. It will be interesting to observe, now that PL 94-142 has been enacted, the extent to which a national contingency on preparation of Mager type objectives in individual educational plans will shape the objective writing behavior of special education teachers.

Lack of expertise in individualized, sequential instructional programming was identified as the major weakness in teachers. As the project moved through each phase, more attention was given to the development of assessment and programming skills. Test materials were generally unavailable to teachers who lacked the expertise to develop their own strategies for fine grain analysis of reading and math skills. As noted earlier, during the final stages of the project, seminar work focused on development and utilization of informal inventories. Teachers were given the materials, and a strategy, to conduct more precise assessments when the school year began.

In summary, with two exceptions, first year persons utilized some components of contingency managed systems which varied from complete and technically acceptable to fragmented and ineffective. The first year's observations pointed out the need for continued work with students, and verified the inadequacy of the summer model. For its most part, while observed, teachers interacted appropriately with their students and a high percentages of on task behavior were demonstrated. The experience from the first year's experiences led to the implementation of the competency evaluation phase of the project.

Competency Based Evaluation

To the author's knowledge, this project represents the only effort to certify teachers on the basis of child performance data. That is, it is the only attempt to certify teachers contingent upon their students' demonstration of criterion performance on academic tasks. This claim has been made often, at conferences and in discussion groups, and has not been challenged. The typical response however has been, having done so,

was the project justifiable, given the present level of expertise in the area; philosophical differences notwithstanding. Here, the procedures, and general issues in competency evaluation are discussed and are related to that most frequent concern.

The competency based evaluation was conducted with the approval of the teachers, their employing districts, the University and the State Department of Education. Two potential reinforcers were offered to the teachers, continuous remedial feedback in the event of below criterion performance, and the provision that a letter describing their above criterion performance would be made part of their teacher certification file. Presumably, they had learned to program for "errorless" learning, and it had been demonstrated that the same principles of learning might apply to them as well as to their students. Thus, they appeared not to be in jeopardy by involving themselves in the project. And, after the first year's observation, a summer seminar was devoted to preparing them with methodology and providing them with the materials to ensure that criterion would be met.

When the school year began, teachers were given a month or so to begin assessments, and to begin to obtain data from their students. Once the evaluation process began, the evaluators first found that teachers were not collecting and dating information so that it could be used for evaluation purposes. The trend became, then, to make repeated visits to some teachers to verify that the data was usable. When a thirty day sample had been accumulated, it was scored and the teacher was determined to be at or below criterion. Where performance was below criterion, teachers were requested to present additional samples for those students whose performing was below criterion. Observers analyzed lesson plans, assessments, and worksheets, and observed teachers' methods of instruction. Remediation was conducted when necessary.

One major source of problems was the data that teachers presented for evaluation. Some teachers presented none, having set it home with the students. When this occurred, evaluation was delayed until the teacher had a sample, as defined. Some teachers originally presented worksheets which had been graded, corrected, and re-evaluated. Again, other data had to be obtained to determine the initial performance. In some cases, teachers presented artwork, or penmanship which they defined as correct or incorrect and assigned a percentage score to. This data was accepted, but discouraged. In the majority of instances, reading and math performance was the basic data for evaluation. In one instance, when students were in a class for trainable children, the teacher had no plan for evaluation, no criteria, and because there was little instruction observed in the classroom, had virtually no data for evaluation. In all, the data for the first year was variable in quality. Data problems led to additional specification of requirements for the last year of the project.

The criterion statement emphasized the phrase 90% correct responding over time and over increasingly more complex tasks. It was not possible to develop a general guideline for "more complex tasks" that would apply to the range of content areas represented across the total group. Instead, the in-field evaluators looked for increased skill development within each content area. Math instruction was, of course, the easiest area to evaluate

since the tasks are clearly identified. In reading, progress through books at the appropriate level represented a specific level of skill progression. Spelling content, similarly represents more and more complex words as students progress through a planned sequence. In areas such as English, Social Studies and History, the criterion is perhaps better defined as progress through a planned set of concepts, or a planned program of work. Evaluator's judgement served to determine whether students were progressing through a program of work, rather than engaging in repetitive practice on a single skill.

Profiles of teacher-child interaction and on task behavior have been presented, showing some homogeneity across the groups, for both years. Most teachers had most of their class under control, and utilized positive interaction strategies with their students. Where they did not, the nature of the data systems lent themselves to providing the support base for remedial suggestions.

The overall conclusion of project staff after both evaluation periods was that, although all but one teacher met criterion, they represented considerable variance in their ability to manage an educational environment. Some excelled in one area, and some in another. Two, because of the experimental nature of the project, were certified but still needed remedial instruction.

Although these teachers represented at least two years prior teaching experience and although many had taught for several years, collectively they did not warrant certification based on traditional measures which are in turn based on the assumption of previous demonstrated competence. There were, within the groups, strong, outstanding teachers. There were also those whose overall ability was marginal. For some, evaluation was a simple verification of competence. Others might have better received one to two years of remedial intervention to increase their skill repertoire.

Practice What you Preach

and

Competency Based Education/Evaluation

When this project was initiated, competency based teacher education (CBTE) was the wave of the future in general and special education. Since then, it has been a one step forward-two steps backward proposition. The state of Texas, for example, moved quickly to adapt competency based evaluation programs, then retreated in the face of an attorney general's ruling that the Commissioner of Education had overstepped his authority (Morrow, 1975, p. 26). The State of New York has mandated, on paper, a switchover to CBTE programs, but with the AFT headquartered in that state, opposition is likely to rise in direct proportion to efforts to strictly adhere to state guidelines.

There is considerable professional and political support for the development of CBTE programs. The former is based on the desire to improve educational practice, the need to document that colleges can train teachers, and the potential for research. The latter is based in the current demand for accountability in education, and the potential for a system to weed out old "bad" teachers and prevent new ones from entering the field. Resistance is based in part on the politics of education. But central to the resistance is the difficulty in defining competencies and evaluating them.

This project entered the CBTE arena by sidestepping the first issue. As noted, competency lists have face validity at the moment, but little other justification. This project addressed the problem with general questions, and evolved a procedure to answer these. We know that there is a list of things a teacher must do to provide the documentation which was requested here, and that in turn translates into a set of observable behaviors.

Evaluation strategy and the appropriate datum for evaluation constitute the major problems for determining teacher competence. There is a general consensus that pupil gain is the most preferred datum, but critics would challenge the contention that the schools control sufficient contingencies to produce change, given the current social environment, and the fact that the child spends a fraction of the total day in school. When pupil gain is described in terms of two data points (pre-post achievement scores), teachers rightfully become concerned.

There is consensus in the professional literature that no single evaluation measure is appropriate for determining teacher competence. There is also consensus that evaluation systems have not reached sophisticated level, and that research on evaluation systems should progress simultaneously with the development of CBTE programs.

This project has reported an evaluation system which is multifaceted, evaluates teacher and child behavior, and samples child performance over time. Its procedural imperfections are reflective of the state of the art in competency based evaluation and, when reported in journals, the qualifications will undoubtedly overshadow the fact that a novel, and exhaustive evaluation was conducted. Nevertheless, the procedure and data sets represent a high level of evaluation. Turner (1972) for example has clearly described levels of intensity in teacher evaluation. Abstracted components of his system include (Level 1-highest, Level 6-least powerful):

- Level 1: (a) Observation of teacher performance.
 - (b) Residual pupil gain in cognitive and affective areas.
 - (c) Time sampling over an extended time period (up to two years).
- Level 2: (a) Same as level one except with a shorter time frame.
- Level 3: (a) Observation of teacher behavior only.

- Level 4: (a) Restricted range and context of teacher behavior, as in a micro-teaching session.
- Level 5: (a) Simulated micro-teaching.
- Level 6: (a) Understanding of content knowledge.

The evaluation procedure described here falls somewhere between levels one and two, with sequential daily data substituted for statistically corrected residual pupil gain on time samples of performance.

This section has listed some problems in the field of competency based teacher education and evaluation. It has been shown that it meets perhaps the most rigorous level of evaluation, although this project contained the procedural flaws inherent in a first generation effort.

McNeil and Popham (1973) concluded a chapter on the assessment of teachers competence with a list of six attributes of teacher criterion measurement systems, e.g.:

- (1) differentiates among teachers
- (2) assesses learner growth
- (3) yields data uncontaminated by inferences
- (4) adapts to teacher goal preferences
- (5) presents equivalent stimulus situations (works equally well in different environments)
- (6) contains heuristic categories (enables analysis and synthesis of performances or behavior chains for self-improvement)

This system as a whole has produced data which clearly differentiates among teachers. Whether the teacher-child interaction scales provide sufficient information is open to inquiry, and additional research is being conducted on them. The system is based primarily on learner growth and all scales yield data that is uncontaminated by inferences. The flexibility in category development of the teacher-child interaction scales can, in a rather limited sense be said to adapt to teachers' goal preferences. Whether such a system can be said to present equivalent stimulus situations is a matter of interpretation. The last attribute, heuristic data categories is open to interpretation. This system is designed to provide positive reinforcement and remedial feedback, based on the data systems. While it is not clear what McNeil and Popham meant when they described this attribute, it is clear that a system based on objective data, collected by evaluators who are expert in educational programming techniques can modify teaching practices without reliance on a set of hypothetical constructs.

Related Questions

There is yet another set of questions to be raised about this project. Most focus on current special education practices, and the future of the evaluation system.

This project was designed to solve a problem that has disappeared for other reasons. Recertification programs for the mildly handicapped became passé when it was determined that there was a surplus of these teachers and when federal priorities shifted from the mildly to the severely handicapped. However, an equivalent demand has emerged for teachers of the severely handicapped. In the face of litigation and legislation, it will be very difficult to resist the development of summer retraining programs. The author (Tawney, 1975) and others, including (Meyen 1975) have argued against the development of short term programs and, at the federal level (Sontag, Burke, and York 1973) there has been acknowledgement that this population requires highly skilled personnel. It can be reported with some degree of confidence that short term recertification programs are not proliferating at the moment. The presence of alternative models such as this should reduce the pressure for traditional programs.

Whether the competency evaluation phase actually discriminated among teachers is an appropriate question for the reader to pose. Of the twenty teachers involved in the program, sixteen were unconditionally endorsed, two were endorsed with qualifications, one accepted certification with a marginal grade due to the vagaries of state regulations and one was not endorsed. That teacher would have been identified in almost any situation, and was, presumably, terminated because of performance which varied extremely from any reasonable standard.

In view of the project staff, the system did discriminate among teachers, and did provide the data base for remedial interventions. The major concept to be noted, however, is that when one is developing supportive programs, e.g. errorless programming for children and adults, the focus is upon facilitating skill acquisition through shaping procedures and through the attributes/procedures listed in the first section of the report.

It is accurate to state that, in the view of the evaluators, the sixteen persons represented a range of "ability" from exemplary to "average". Yet, the staff were confident that each person could develop appropriate educational programs for their students, if the resources were available in their systems to enable them to do so. That is not to say that some would not have benefitted from additional remedial instruction.

As this project was completed, the range of performances among a group that met a common standard posed a problem for project staff in that the phrase "met criterion" obscured what one felt to be outstanding performance by some teachers. The problem, upon closer examination, was that there was no strategy to describe those behaviors, or to transmit them as part of a document for public scrutiny. While it might have been possible to develop statements such as "this teacher had accurately identified 100% of the

initial oral reading errors in her students, that was not done, nor would it have had particular impact when transmitted to the state certification files. Work continues on systems to meet the first problem, and alternatives can be developed to solve the second.

Will these teachers maintain their criterion performance? This is an empirical question which can only be answered by further research. This project exerted a powerful contingency on their performance. There are no other contingencies in the educational system for those who needed extensive remedial assistance.

Will this system work in a variety of settings? As designed, this system would have wide usage in regular education and classes for the mildly handicapped. There are verbal interaction scales which are probably more appropriate for children with highly developed verbal repertoires. The work of the project director has focused on children with more severe handicapping conditions, who present a different set of problems. Parts of the system have been tried out in preschool classes for the severely retarded, where verbal interaction of the children is limited, and where on-off task behavior has different dimensions for children who are not initially self-directing. As noted, work is continuing on the development of an evaluation system appropriate for that population. This is a particularly challenging area because, until recently, this population has been considered uneducable. With the exception of those professionals who work in the area, there is little general consensus that this population can learn. Based on the preliminary efforts of this project future needs include the development of strategies to evaluate direct, tutorial instruction, to document the extent to which this population responds in an errorfree manner on increasingly more complex academic tasks, on teacher-child interaction scales appropriate to the signal systems of the target population, on data sheet preparation to document the amount of instruction received during a school day, and on measures of efficiency of instructional activities. The last activity has been derived from a second publication (Tawney, Kruse, Kelly and Cegelka, in press), originally titled a sequel to "Behavior Modification is Not..." and focused on the analysis of the frequency and quality of selected "instructional" activities. As this report is being written, computer systems are being developed to display teacher-child data graphically, for immediate teacher feedback, and to simultaneously display child performance data for specified time periods, academic areas, and specific children. Thus, for research and development purposes, variations of the procedure described here are being extended to other child populations.

"Won't teachers program below students expectation levels on these systems to insure that they meet criterion?" This question occurs frequently in the CBTE literature. If competence were to be evaluated on two data points, beginning and end of year, it is obvious that teachers would be challenged to accelerate their students' performance to demonstrate significant levels of growth (gains). In this system, the catch phrase is positive change over time and over increasingly more complex tasks. When evaluators are instructional programming experts, and know the difference between initial acquisition and repeated practice on a skill, it is difficult to program below a student's ability level. As systems of this type grow in sophistication, a series of "and" statements may be added to

the performance criterion. That is, children will meet the 90-95% criterion and no child data will be presented which shows repeated practice after acquisition and systematic review, and where initial assessment data show specific skill deficits, there will be documentation of intervention strategies to ameliorate those deficits, etc. In short, it is possible, but unlikely as evaluation becomes highly sophisticated.

Can anyone afford it? Because of the procedural problems common to prototype projects such as this, it is not possible to project cost estimates for an evaluation system. And, it is undoubtedly a premature effort. At this point in history, it is more important to continue the development and refinement of systems. If society is serious about determining the competency of teachers, it will supply the political and financial support to do it.

This was a unique application to and outgrowth of a summer recertification program. What applications does it have for pre and in-service training programs? This system can be adapted in whole for preservice education, if internship programs are added to the requirements for endorsement, or where the structure of the program is modified so that students have the opportunity to demonstrate competency in a series of increasingly longer, more complex teaching experiences. When a student, however, has only eight or ten weeks in a single teaching experience, the child performance criterion is not reasonable. The author, several years ago, proposed a teacher education model that would culminate in a competency demonstration following this model.

In-service programs which emphasize specific skill development, and which have a performance criterion may better structured with an in-class demonstration of competence than with a paper and pencil examination at the end of the training session. It is axiomatic that federal programs, which provide much of the support for special education efforts, do not carry mandates for the demonstration of competence at a time when federal support has provided the impetus for much of the research and development work in CBTE.

SUMMARY

This report has described phases in a project which began to develop a better way of addressing the teacher recertification problem, and went on to apply the data and procedures to the implementation of a competency based teacher evaluation system.

Both activities have been described and data from various phases of the project has been presented. It has been stated that, presumably for the first time, teachers certification was made contingent upon three criteria, including documentation of child performance over time and over increasingly more complex tasks. The limitations of the present system have been listed, and a series of broader questions about CBTE have been addressed. Applications and extensions of this work have been sketched briefly. The benefits of the contingency managed component of the course were documented and the attributes of this model of competency evaluation have been compared to those in the most rigorous evaluation models. Having described the ways in which this system meets the most rigorous criterion it has been suggested that the procedures should, with additional research, be incorporated into a variety of training models.

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APPENDIX A
Module Outlines

1972

MODULE ONE

Writing Behavioral Objectives

1. Last date for completing posttest #3: June 22
2. Point Values

Task 7	0
8	0
9	10 Max.
10	15 Max.
Posttest #1	20
Posttest #2	15
Posttest #3	5
3. Discussion session June 26 10
4. Reading assignment:
Mager, R.F. Preparing Instructional Objectives.
Fearon Publishers: Palo Alto, 1962
READ WHOLE BOOK
5. Supplementary materials:
 - a) IOX order form
 - b) Guide Sheet

STUDENT PERFORMANCE SHEET
Mager-Preparing Instructional Objectives

Given a pencil, posttest room, and proctor, you should be able to perform to 90% criterion, the following tasks on posttests:

1. Write the purpose of an objective as indicated by Mager.
2. List (identify) three critical elements of an "acceptable" objective.
3. Discriminate the function of each critical element in an objective.
4. Discriminate "observable behavior" verbs from "non-observable behavior" verbs.
5. Label sets of objectives as acceptable or unacceptable, according to Mager's criterion.
6. Identify missing critical elements in objectives which would be labeled unacceptable.

Given pencil, text, and materials you should be able to complete these tasks:

7. Complete self-test in Mager and present to proctor.
8. Write a list of questions on behavioral objectives which are raised by the content of Mager, and present to proctor. The rules should be those which would arise from implementing Mager's suggestions in your own classroom. They should not be a repeat of Mager's self-examination.
9. Write 10 "acceptable" classroom-related objectives. If your objectives are written to 100% criterion (10 acceptable objectives), you will receive 10 points. If your objectives are written to 90% criterion (9 of the 10 are acceptable), you will receive 9 points. Anything less than 90% criterion, will not receive points until rewritten to 100% criterion. The revised objectives will receive 5 points.
10. List 10 activities in the academic and/or social learning areas and categorize them as observable or unobservable behaviors. From this list, select 2 unobservable behaviors and revise them so that they may be classified as observable.

CONTINGENCIES
Sequence of Events 7-11

If you complete #7, then you may do #8.
If you complete #8, then you may do #9.
If you complete #9, then you may do #10.
If you complete #10, then you may complete the posttest.

MODULE TWO

Resources for Special Education Teachers

- | | | |
|-------|--------------------------------------|------------------------------|
| 1. a) | Last date for completing Posttest #3 | No Posttests for this Module |
| b) | Last date for completing Tasks | July 2 |
| 2. | Point Values | |
| | Task #1 | 0 |
| | #2 | 2 |
| | #3 | 5 |
| 3. | Discussion session | None |
| 4. | Reading assignment | None |
| 5. | Supplementary materials: | |

Erickson & Blackhurst, "Information Resources for Special Educators"; Information Sources for Special Education.
Love Publishing Co.: 1970.

STUDENT PERFORMANCE SHEET

To complete this module you should be able to:

1. Apply for a library card at the IMC.
2. Using the attached request form, initiate a request for information on instructional materials that would be appropriate for teaching.
NOTE: Be as specific as possible. Be sure to include your IMC library card number and your home mailing address in order to receive this material. Present the request form at the IMC and a copy of the request form to your instructor.
3. Assume that you wish to obtain information on research that has been done on a topic related to an area of your particular interest in the education of the e.m.r. child. Choose one of the following descriptor terms found in ERIC and respond to the following items:

ARITHMETIC DEFICIENCIES	REINFORCEMENT
BEHAVIORAL OBJECTIVES	RETARDATION
EDUCABLE MENTALLY HANDICAPPED	RETARDED READERS
LEARNING DIFFICULTIES	REMEDIAL ARITHMETIC
READING DIFFICULTY	REMEDIAL MATHEMATICS
READING INSTRUCTION	REMEDIAL READING
READING RESEARCH	SOCIALLY DISADVANTAGED
SOCIAL INFLUENCES	

- a) List the descriptor term which you selected.
- b) List the title of a document you identified as relevant.
- c) List the author of the document.
- d) List the source of the document.
- e) List the ED number.
- f) Write a brief critique of the document which includes:
 - (1) purpose of study or report.
 - (2) procedure used to conduct a study (if appropriate).
 - (3) results (if appropriate).
 - (4) author's conclusion.
 - (5) a statement of how you intend to utilize this information in your classroom.

CRITERION: Complete each item which is listed.

UNIVERSITY OF KENTUCKY
Regional Special Education Instructional Materials Center
641 South Limestone Street
Lexington, Kentucky 40506

REQUEST FORM FOR INSTRUCTIONAL MATERIALS

Name: _____ Date: _____
Mailing Address: _____ Phone at this address: _____

SEIMC Library Card # _____

NOTE: If you already know the SPECIFIC NAME or title of the material you want, please list it in the Comment Section ONLY. COMPLETE ONE FORM PER REQUEST.
I. TYPE OF STUDENTS - Complete ALL spaces.

A. Area of Exceptionality (e.g.: EMR, TMR, Deaf, Visually Handicapped, etc.)

B. Level (e.g.: pre-school, primary) _____

C. Students' Chronological Age (Range) _____

D. Students' I.Q. and/or Mental Age (Range) _____

II. ACADEMIC AREA

A. Curriculum on Content Area - Check only ONE space per request.

☐ English & Spelling	☐ Art, Music, Dramatics	☐ Perceptual-Motor Aids
☐ Phonics	☐ Vocational Education	☐ Health & Safety
☐ Social Studies	☐ Reading	☐ Speech, Language or
☐ Science	☐ Arithmetic	☐ Hearing Aids

B. Concepts/skills to be developed (What do you want your students to be taught with this material?)

III. TYPE OF MATERIALS NEEDED

A. Teaching materials needed for use with students - Check only ONE or TWO spaces.

☐ ideas for teacher-made items.
☐ audio-visual materials (transparencies, filmstrips, slides, records, tapes, films, etc.).
☐ texts and workbook materials for children.
☐ manipulative materials (puzzles, play items, sensory materials, etc.).
☐ instructional games
☐ other (specify) _____

B. Special characteristics (e.g.: programmed, non-graded, large type, etc.)

C. ☐ Check here if you desire materials for your own professional growth.

IV. Please use the back of this page to name any items which you have already referred to so that duplicate materials will not be sent to you.

MODULE THREE
Task Analysis
(1972)

The content of this module will supplement the content of other course modules, primarily educational assessment and the educational programming modules. One optional task will be specified which is non-contingent.

1. Date for completing Posttest #3 no posttest for
this module
2. Point values

Task 4	June 30	10
--------	---------	----
3. Discussion session none
4. Reading assignment

Tawney, James W. "Task Analysis." Unpublished
manuscript
5. Supplementary materials - one of the following:
 - Lesson Plan - Tying
 - Lesson Plan - Pants Dressing
 - Lesson Plan - Pants Undressing

TASK ANALYSIS MODULE-STUDENT PERFORMANCE SHEET

When you complete this module, you should be able to:

1. Given a task, analyze it into its smallest component parts.
2. State, orally or in writing, upon request, a definition of of task analysis.
3. State, orally or in writing, upon request, the relationship between task analysis and instructional programming.
4. Select a task, write a task analysis and submit it to the proctor(s). A statement identifying the task analysis as acceptable or unacceptable will be returned to you with the task. If unacceptable, a rewritten task must be submitted. The rewritten task analysis must be judged acceptable within one week after the return of the original task request to receive points for the module. The criterion for an unacceptable evaluation is: two or more major steps or operations have been deleted. Proctors will define "major".

Generalization Tasks - The following tasks represent higher level tasks. They are not assigned to this module. They may be assigned as an independent task or as part of another task.

1. Given a set of prerequisite skills for specific task, analyze the list and delete any elements which may be irrelevant to the task.
2. Given a child with a learning problem, on a specific task, observe the child while he executes the task, pinpoint and record the area of difficulty. Then, task analyze this area, and develop a strategy to teach the task to the child.
3. Select an area of instruction, e.g. adding 3 or more two-digit numbers which require carrying. Write a teaching strategy for the specific (new) skill, (carrying). Analyze the strategy and write an exhaustive list of prerequisite task which your strategy (explanation, demonstration, instructions) requires.

Materials - Task Analysis Module

1. Tawney, J. Task Analysis. Unpublished Manuscript, University of Kentucky, 1971.
2. Student Performance Sheet
3. Lesson Plan - Tying

Reading Requests: Tawney, J. Task Analysis

MODULE FOUR
Behavior Modification
(1972)

- | | | |
|----|---------------------------|----------------|
| 1. | Last date for Posttest #3 | no posttest |
| 2. | Task | August 7, 1972 |
| 3. | Discussion session | none |
| 4. | Reading assignment | |

(to be completed in EDS 530 or by
independent study)

BEHAVIOR MODIFICATION MODULE - STUDENT PERFORMANCE SHEET

Knowledge of the principles of behavior modification is a prerequisite skill for the behavior modification task in this course. We assume that most of you are enrolled in EDS 530. Characteristics of the Mentally Retarded, concurrently with EDS 526/505. The content of that course will prepare you to complete the individual social behavior change project required here.

If you are not enrolled in EDS 530 you will be required to obtain the prerequisite skills on your own. You may do this in a number of ways, for example:

- a) obtain the EDS 530 course materials and study them on your own.
- b) attend EDS 530 for the portion of time that behavior modification is discussed.
- c) obtain texts on behavior modification from the library and study them on your own.
- d) etc.

If you are enrolled in EDS 530, you will complete portions of the task for that course and receive credit in both EDS 530 and 526/505. If you are not enrolled in EDS 530, you must still complete all of task to receive points in EDS 505/526.

TASK

(point value = 100)

Social Behavior Change

Given a child, scheduled time for intervention, and the prerequisite skills in behavioral principles stated in EDS 530, you should be able to carry out a social behavior change (behavior modification) project. To complete this task you will be required to:

1. Write a list of possible behaviors change targets in the classroom. This list should include
 - a) the child's first name
 - b) the target behavior
 - c) the direction of behavioral change (increase or decrease in frequency)
 - d) estimate of the rate of behavior in a short period of observation, e.g. 10 minutes.
 - e) unique components of the behaviors, if any, e.g. Ralph howls only when the moon is full.
2. Select (write) the target behavior you select for your project.
3. Submit, in writing, your selection from 2 (above) to your instructor for approval. You should also write
 - a) the rationale for your selection
 - b) the possible benefit to the child and to other class members
 - c) a more precise estimate of the frequency of the behavior.
4. Given approval of your instructor to 3 (above) write a rough draft of the project you expect to institute. This should include
 - a) the target behavior (stated in observable terms)
 - b) the direction of behavioral change
 - c) a list of possible reinforcers obtained by
 - i asking the child
 - ii asking the teacher
 - iii observation of the child in the school setting

(Note: These should be positive consequences. They need not be tangible primary reinforcers solely.)

- d) your intervention procedure
 - e) the schedule of reinforcement
 - f) criterion measures for shifting schedules of reinforcement
 - g) criterion for "success" of project
 - h) possible alternate strategies
 - i) possible strategies (managers) to carry out your program in your absence
 - j) a "dummy" graph with the abscissa appropriately labelled and with an appropriate title written below the data points on the ordinate
 - k) the no. of days of baseline data you will collect
 - l) a recording system
5. Given approval of 4 (above), implement your program.
 6. Schedule, if necessary, tutorial sessions with your instructor.
 7. Institute alternate strategies if necessary.
 8. If the program meets your specified criterion for success, select another behavior and repeat all the steps listed above.
 9. Write a final report of your project which includes
 - a) introduction - why behavior was selected
 - b) description of change
 - c) direction of change
 - d) reinforcement procedure
 - e) criterion for shifting schedules of reinforcement
 - f) graph of your results
 - g) summary statements including all strategies you used, program modifications, unique situational variables, recommendations for further performance, other comments you deem appropriate.
 - h) an attached copy of all the "raw" daily data which you have collected

Criterion measure: You will be evaluated in terms of the success of your project. 90% of the total points for the project will be assigned to the success of the project. If you meet your stated criterion (agreed upon by you and your instructor) you will receive all of the points assigned to the success of the project. If you do not meet your stated criterion, proportionately fewer points will be assigned, on a subjective basis by your instructor. If, for example, you come close to your stated criterion you will receive most of the points. If, on the other hand, there is no demonstrable change from baseline to treatment conditions, you will receive 0 of these points.

10% of the points will be assigned to the readability of your final report. If it contains all the elements stated in 10, you will receive 5% of the total points. If your graph is accurate and correctly labelled, you will receive an additional (remaining 5%) of the total points.

MODULE FIVE

Contingency Managed Instruction

1. Last Date for Posttest #3 July 2
2. Point values
 Posttest #1 50
 " 30
 " 10

 Tasks
 A 20
3. Discussion sessions
 Session #1 July 6
 " #2 July 7
4. Reading assignment
 Neisworth, J., Deno, S., and Jenkins, J.,
 Student Motivation and Classroom Management.
 Newark, Del.: Behavior Technics.
 pp 1-22; 46-end.
5. Supplementary readings
 Homme, L., et. at. How to Use Contingency Contracting
 in the Classroom.
 Champaign, Ill.: Research Press.

Student Performance Sheet

Given the condition for posttesting, you should be able to respond to 90% criterion on the following:

1. Given the statement "Basic principles for changing behavior require only a few basic facts", identify the statement as correct or incorrect.
2. List 4 basic procedures for building and maintaining desirable behaviors.
3. List 2 criteria for a behavior change target.
4. State the (one) (only) way a behavior can meet the definition of "countable".
5. Discriminate observable behaviors from nonobservable behaviors.
6. Complete the statement "Behavior is shaped by its _____".
7. List three kinds of consequences.
8. Define a strengthening consequence.
9. Define a weakening consequence.
10. Define a neutral consequence.
11. State the probable effect of a consequence on a behavior, given a classroom example to analyze.
12. Given a desirable classroom behavior, select probable strengthening consequences from a list of consequences (reinforcers or reinforcing events).
13. List two procedures for decreasing the frequency of an "unwanted" behavior.
14. Given two procedures for decreasing the frequency of an "unwanted" behavior, select (mark) (identify) the procedure which is generally most appropriate.
15. Given the context of the optimum conditions for the presentation of reinforcers, define immediacy and consistency.
16. Given a list of procedures for shaping behaviors, discriminate between procedures to strengthen a response and procedures to maintain a response at a given rate.

17. Given a list of strategies for changing behavior, discriminate between strategies which use continuous and those which use discontinuous (intermittent) reinforcement.
18. Write or identify strategies to "stretch" ratios of reinforcement (fade out reinforcement, shift schedules of reinforcement).
19. List 2 reasons for keeping data.
20. Given a set of data, on child behavior, and accompanying information, construct a graph.
21. State, in writing, the rationale for graphing before a treatment is begun.
22. Define (write a definition of) behavior shaping.
23. Given the term shaping, select a synonymous term from a list of terms.
24. Given a set of examples which illustrate shaping procedures, select (or rank order) those which are most appropriate and write a rationale which discriminates the best from the worst.
25. Discriminate academic targets from social behavior change targets.
26. Given a list of social behavior change targets, select those which are countable.
27. List three rationale for precise specification of behavior change targets.
28. Given a list of statements which "analyze" behavior, discriminate objective statements from subjective statements.
29. State the ultimate goal of contingency management.
30. List two ways (methods) to identify "preferred" consequences or reinforcers.
31. Given a list, discriminate objects commonly used as tokens from objects commonly used as back-up reinforcers.
32. Write a rationale for the use of tokens in a "token economy".
33. List two general procedures for allowing students to spend tokens.
34. Given a set of examples, write strategies for controlling disruptive behavior.

Given the text, and a classroom placement for the Fall, complete the following task. Criterion: None. Completion of the task is sufficient.

Classroom Management

- A. Write a detailed list of the steps you will take in setting up a (token economy) (contingency managed) class when you return to your class this Fall. This should be a very complete, very specific list, and should include the following:

1. Techniques of instruction:
 - a. list of inappropriate social behaviors which have caused problems for you during the past year.
 - b. describe strategies of approach for dealing with those target behaviors listed in a.
 - c. describe steps which one might take to move from teacher control to self-control.
2. Materials:
 - a. list 20 items you might include in a reinforcement menu.
 - b. list 5 objects which might serve as tokens.
 - c. list any materials which might be appropriate for instructional use.
3. Physical plan:
 - a. make a floor plan for a (contingency managed) (token economy) classroom which you would like to incorporate.
 - b. list (or indicate on your plan) one area in your school which could serve as a time-out room.
4. Additional:
 - a. list 5 possible sources of help in your community (for running a token economy).
 - b. describe (in writing) how you could best use these resources.

MODULE SIX

Assessment of Exceptional Children

This module will be taught in EDS 530 and EDS 526. In EDS 526, you will focus on the "diagnostic" assessment of learning problems. Your major task in assessment is to pinpoint a child's specific assets and deficits. This will lead to long-term educational programming for the child.

- | | | |
|----|---------------------------|----------|
| 1. | Last date for Posttest #3 | July 12 |
| 2. | Point value | |
| | a) Posttest #1 | 15 |
| | 2 | 10 |
| | 3 | 5 |
| | b) tasks | *July 20 |
| | 1 | 5 |
| | 2 | 5 |
| | 3 | 5 |
| | 4 | 5 |
| | 5 | 5 |

*Note: Due to scheduling, tasks for this module may be turned in after the Posttests.

- | | | |
|----|---|---------|
| 3. | Discussion Session | July 14 |
| 4. | Reading assignment | |
| | Smith, R. <u>Clinical Teaching</u> . pp 32-49 (Chapter 3),
pp 130-142, pp 165-174. | |
| 5. | Supplementary reading material | |

Tawney, J., "A Rationale for Educational Assessment."

Smith, R. Teacher Diagnosis of Educational Difficulties,
Columbus: Charles E. Merrill Co. 1969.

Chapter 4	Reading Skills
5	Written Expression & Spelling
6	Speech & Language Disorders
7	Arithmetic Skills

Student Performance Sheet

Assessment Module

Given the conditions for posttesting, when you complete this module you should be able to complete the following tasks to 90% criterion.

1. Discriminate sets of statements which compare among individual differences from sets of statements which compare within individual differences.
2. Mark intra-individual differences in sets of comparisons which include both inter and intra individual comparisons.
3. List two major factors considered by Smith to be important in determining "The significance of an area of exceptionality."
4. Write examples of intra individual deficits for specific learning tasks.
5. Define the term reference group.
6. Define the word relative in the context of relative strengths and weaknesses.
7. List 4 levels of educational diagnosis as proposed by Smith.
8. From sets of examples, select those which represent a specified level in the stages of educational diagnosis.
9. Write two teaching strategies to minimize the effects of the hypothesized "memory-deficits" in "mentally retarded" children.
10. List 5 steps which Smith proposes to facilitate "transfer."
11. Select from a list, the "intelligence" tests which a classroom teacher may administer.
12. Write the informal procedure which Smith suggests as an alternative to formal assessments of capacity for reading.
13. List 3 group reading achievement tests.
14. List the steps a teacher must go through to develop an informal reading inventory based on the reading tests available in her school system.
15. List 2 formal tests of specific reading deficits.
16. List 2 formal tests which assess arithmetic achievement.

DIAGNOSTIC PROFILE

Given a child, opportunity to test, and the specific materials listed in the tasks below, you should be able to:

1. Administer the Peabody Picture Vocabulary Test, and score it correctly. Criterion performance for this task is:
 - a) all information on the test form must be completed
 - b) the IQ score must be computed correctly
2. Administer a group achievement test, and score it correctly. The test should include the areas of reading and arithmetic.
3. Given an approximate reading level for a child, select a reading text at that grade level.
 - a) request the child to read from that text
 - b) time the child's reading for a specified time period (2 - 5 minutes).
 - c) record the time interval with a stop watch
 - d) record the specific words missed
 - e) compute the following statistics:
 - (i) the total number of words read
 - (ii) the time interval
 - (iii) the words read per minute
 - (iv) the errors per minute
 - (v) % of words read correctly
 - f) Write a list of the child's specific deficits (inability to sound out words, word substitutions, word transpositions, etc.)
 - g) write a statement which summarizes the child's reading performance
4. Given a child's approximate level in arithmetic, present the child with a sequence of problems, to determine his functional level.
 - a) task analyze computational skills as well as problem solving behavior
 - b) list the child's deficit areas
 - c) identify a skill area in which the child can perform at 80% correct
 - d) present the child with a set of problems
 - e) observe and record the following data:
 - (i) problems per minute
 - (ii) % correct responding
 - (iii) specific computational deficits
5. Given the opportunity to collect the data in tasks 1 through 4 above, write a summary report which includes that information in profile form (see Smith, p. 39, for one model of a profile).
6. Write a list of materials.

MODULE SEVEN

Evaluation of Instructional Materials

1. Last date for completing posttest #3: No Posttest
for this
module
2. Point values
Task 1 To be turned
in prior to
completion of
module 8 10 max.
3. Discussion Session None scheduled
4. Reading assignment:
Description Analysis Guide (working materials)
Tawney, J., Evaluation of Instructional Materials
Unpublished Manuscript
5. Supplementary reading:

STUDENT PERFORMANCE SHEET

When this module is completed the student should be able to

1. Select curriculum materials appropriate to the children he teaches (will teach). To complete this task, the student must:
 - a) read the diagnostic material obtained in module 6.
 - b) go to the SEIMC library and locate the materials for the specific area of instruction.
 - c) write a list of at least three curricular programs which are appropriate for the child.
 - d) select one of the three materials as the basic "context" for the short and long term programming for module 8.
 - e) write a rationale for your selection which is based on the information in the descriptive analysis guide. This rationale should show the relationship between the materials selected and the child's functional level.
 - f) state the ways in which the material will meet the objectives stated in module eight.

Criterion: The criterion for this task is rather subjective. It will be based on the following judgements:

- a) are the three materials which you select similar in purpose.
- b) do the rationale which list for selection of materials relate to the child's level of performance.
- c) is your analysis accurate?

MODULE EIGHT

Programming Educational Tasks in Reading

1. Date for completing Posttest #3 July 20
2. Point values
 - a) Posttest #1 20
 - 2 15
 - 3 5
 - b) tasks 0
 - 29 50
 - 30 August 3
3. Discussion Session July 21
4. Reading Assignment
 - a) Smith - Chapter 4
 - b) Smith - Chapter 7, pp 128-131; pp 142-162

STUDENT PERFORMANCE SHEET

When you have finished Chapters 4 and 7 in Smith, you should be able to respond to criterion, under the specified conditions for posttesting, on the following:

(Chapter 4)

1. Given the prerequisite knowledge of the content in Bijou's Functional Analysis of Retarded Development, write a rebuttal to Smith's statement that "Because of their subaverage intellectual ability, mentally retarded children do not reach the stage in their development at which specific skills in the total subjects can be taught effectively until they are approximately eight years of age chronologically". (p. 50) To meet criterion for this specific item, your response must include:
 - a) the basic assumption underlying Bijou's article
 - b) identify key words (concepts) in Smith's statement which are incompatible with Bijou's position
 - c) write the prognosis for school success for a child who is taught from Smith's "position" as compared to the prognosis for a child who's instruction is based on Bijou's theoretical position.
2. Given the prerequisite knowledge obtained from Neisworth, Deno and Jenkins, from your knowledge of the concepts "shaping, and errorless learning", list the teaching strategies which you would follow with a specific child which then might constitute a rebuttal to Smith's statements (p. 50) listed in item 1.
3. Write a definition of the term (concept) scope.
4. Write a definition of the term (concept) sequence.
5. Given sets of examples, discriminate those which represent a scope of educational activities from those which represent a sequence of activities.
6. Select, from a list of alternatives, those aspects of programming scope educational activities for "MR", which constitute "hazards" for an individual "MR" child.
7. Given an example (examples) of a scope of activities, list the skills a teacher must "have" to program for a child.
8. Given the statement "Deficits cumulate", write an explanation of the statement which includes an example to illustrate your answer.

9. List the four educational goals for the mentally retarded formulated by the Educational Policies Commission (EPC).
10. Given a general goal, as stated by the (EPC) list 5 examples of teaching strategies which would fall within that area.
11. Given a general goal, as stated by the (EPC), write 3 behavioral goals which would contribute to the implementation of that goal.
12. List two primary educational objectives for the retarded which are proposed by Smith.
13. List the 11 fundamental principles of instruction (and) write one classroom activity which illustrates an example of that principle.
14. Given a set of 11 fundamental principles of instruction, and a set of classroom activities, match the principles with the activities.
15. List eight hypothesized "areas of frequent weaknesses" in the retarded.
16. Given the prerequisite training in discriminating observable/nonobservable "activities", or the ability to discriminate behavioral terms from hypothetical constructs, identify the nonbehavioral constructs in Smith's 8 hypothesized area of weakness.
17. Given a list of the hypothetical constructs, identified in 16 (above), redefine these areas in a behavioral framework.
18. Given a list of behavioral analogs to hypothesized areas of weakness, write a teaching strategy to remediate each item on the list.

(CHAPTER 7)

19. List 5 rationales given by Smith for emphasizing reading skills. Write a point-by point objection to these, if they are contrary to your philosophy.
20. List 4 basic goals of reading instruction.
21. List six levels for developing readiness skills in auditory discrimination.
22. Write a teaching strategy for a given auditory discrimination skill.
23. Discriminate between strategies for teaching sight words and strategies for building word attack skills.
24. List four general approaches to teaching beginning reading.
25. Given a general approach to teaching beginning reading list the advantages and disadvantages as stated in Smith.

26. Given the statement "Phonetics are too complicated for the EMR", write a rebuttal to the statement based on the prerequisite information contained in Bijou's Functional Analysis of Retarded Development.
27. Given the statement "Phonetics are too complicated for the "EMR", select a specific phonetic skill, and develop an errorless program to teach it.
28. Write the 7 strategies which Smith suggests will help to teach the "experience" method to older EMR children.

When you have completed the reading, you should proceed your instruction with:

29. a list of questions on Smith (this list might include questions which you have over the material, questions over specific teaching strategies which are not included in these chapters, and procedural questions which relate to the implementation of the concepts listed in the chapters.

When you complete this module, you should be able to combine the strategies in Smith, the information in Mage and the procedures suggested by Neisworth, Deno and Jenkins, with your teaching experience, and engage in long term educational programming for specific children. To demonstrate competence in this task, you should:

- a. Specify the particular skill to be learned
- b. State behavioral objectives
- c. Task analyze the behavior to be learned
- d. State the specific sequence of activities involved in learning each task
- e. Choose the materials required to achieve the objectives
- f. Determine the teaching strategies to be used.
- g. State the criterion performance expected of the child at the end of each instruction session
- h. Choose and state the reinforcement system to be used
- i. Include a series of task cards to be used in instructing the child.

(a-i) must be included in the final report that is to be handed in to the instructor in order to meet criterion. In addition, the child should perform at 90% criterion, on 90% of the tasks which you are able to present during the remaining instructional period.

For those individuals who develop programs in Math instruction, the content of Smith, Chapter 7 should be considered as prerequisite to development of programs.

MODULE NINE

Programming Educational Tasks in Math

1. Date for completing Posttest #3 July 30
2. Point values
 - a) Posttest #1 20
 - 2 5
 - 3 5
 - b) Tasks 5
(the programming task is specified
in module 8)
3. Discussion Session July 29
4. Reading assignment

Smith, Chapter 7, pp 163-165, 174-198.
5. Supplementary readings

Tawney, J., Notes on Math Instruction

STUDENT PERFORMANCE SHEET

When you have completed Chapter 7, you should be able to respond to criterion, under the specified conditions, on the following:

1. List five basic objectives for arithmetic for the "retarded," as proposed by Smith.
2. Given any one of Smith's proposed objectives, select those problems which would meet the objectives from a list of alternatives.
3. List three basic questions which may be used to "test" the inclusion of specific content in arithmetic programming for the retarded.
4. Select, from a set of alternatives, the Bereiter-Englamann approach to basic arithmetic instruction.
5. Write a definition of the concept classification.
6. Write a definition of the concept correspondence.
7. Write the relationship between the concepts conservation and reversibility.
8. Given a set of teaching strategies, identify (select) those which represent the concepts of classification, correspondence, conservation and reversibility.
9. Define the concept zero.
10. List Smith's statements of the capacity of the retarded for specific arithmetic skills which might be challenged from functional analysis of development retardation.
11. When you have completed the reading you should present your instructor with a list of questions over this content.

MODULE TEN

Programming Educational Tasks in Language

1.	Date for completing Posttest #3	August 5
2.	Point values	
	a) Posttest #1	20
	2	15
	3	5
	b) Tasks	0
3.	Discussion Session	August 6
4.	Reading assignment	
	Smith, Chapter 6	

STUDENT PERFORMANCE SHEET

When you complete Smith, Chapter 6, you should be able to respond to 90% criterion, to the following:

1. List 3 major components of communication.
2. Discriminate between speech and language.
3. Define echolalia.
4. List five basic requirements for speech development.
5. Given 5 basic requirements for speech development, match them with situations which illustrate the presence or absence of a specific basic requirement.
6. Given a general statement such as "Speech therapy for the retarded has been questioned because of the amount of work required for the relatively small pay-off," write a rebuttal to the statement which is based on all factors which Smith would consider.
7. Write a policy statement which define your (a teacher's) limitations in correcting a child's defective speech.
8. List three components of language as suggested by Myklebust. Then, compare those components with a behavioral (operant) approach.
9. Given Smith's discussion of language characteristics of the retarded, within Myklebust's model, write a reanalysis of those findings from a functional analysis (behavioral) (operant) approach.
10. List three tests used to sample various language functions.
11. List (any) 5 informal activities for assessing language function, and designate the area which the activity is designed to assess.
12. Given a set of language activities which children consider to be "boring", and a set of language (or other) activities which children consider to be "fun", write a strategy to accelerate the learning of the "boring" activities.
13. Write a list of questions over the chapter.

MODULE ELEVEN

Parent Conferences

1. Last date for Posttest #3 no posttest for
this module
2. Point values
- a) task 13 0
3. Discussion session August 9
4. Reading assignment
- a) review Neisworth, Deno and Jenkins
- b) Smith, pp 253-259.
5. Supplementary readings:
- a) Becker, W. Parents are Teachers. Champaign, Ill.:
 Research Press, 1970.
- b) Patterson and Gullion. Living with Children.

STUDENT PERFORMANCE SHEET

When you finish this module you should be able to:

1. Write strategies for reporting social and academic behavior to parents of "retarded" children.
2. Explain (vocally) assumptions which underlie a functional analysis of retarded development.
3. Given parent statements of child behavior problems in the home, suggest strategies for accelerating low-rate appropriate behaviors or for decelerating high-rate inappropriate behaviors. Strategies should be based on the principles suggested in Neisworth, Deno and Jenkins.
4. Given a list of potential problems of a personal, moral, ethical, and/or professional nature, select those which are within your professional competence.
5. State given the name of any child in your class, positive attributes of the child which you may reinforce and which you can relate (state vocally) to parents so that they might reinforce the same behaviors.
6. Given a list of family problems which require assistance outside of your area of professional competence, state (write) sources of help within your community.

APPENDIX B

Recording Form and Coding System For
Recording Child Social Behavior

[illegible]

RULES

1. Record group data on all S's from 9:15 - 10:15 am.
2. Use a 10-15 sec. on/off observation schedule.
3. Record all instances of inappropriate behavior during an interval. (Note: This statistic will yield a sum of inappropriate behaviors larger than the sum of intervals.

Procedure for Scoring Data:

1. Count the total number of intervals scored for the one hour period. (a)
2. Count the total number of intervals scored as on task. (b)
3. $b - a = c$ (% of on task interval).
4. $c - 100 = d$ (% of off task interval).
5. Count the number of inappropriate behaviors. (e)
6. Count the total number of inappropriate behaviors in each category. (f)
7. The sum of (f) should check with (e).
8. Graph c

Definition of Categories

I. Disruptive Physical Acts

- h = hitting
hitting teacher or other children
- k = kicking
kicking teacher or other children
- p = pushing
pushing teacher or other children
- s = shoving
shoving teacher or other children
- t = throwing objects about the room

II. Disruptive Vocal Behavior

- = swearing and name calling
- = talking to others in class
- = nondirected talking, this must be loud enough to cause another child in the room to attend to the behavior

III. Out of Seat Behavior

In seat is defined by a strip of masking tape on the floor, including approximately 1 ft. of space on each side of the desk. An instance of out of seat behavior is counted when S has at least 1 foot completely outside the line.

The following conditions must be accounted for when S is out of seat for a legitimate reason.

S is directly on his way to or from another task area. Score as on task.
If S stops, or engages in disruptive behavior, score as out of seat. S is in the reinforcement area. Score as on task.

IV. Appropriate Classroom Behavior

= on task

S must be in a defined work area, engaged in the requirements of the task. These requirements will be different, depending on the nature of the task.

S must attend for the total 10 sec. interval

APPENDIX C

Teacher Behavior Recording Form and Code

TEACHER BEHAVIOR

(Date) _____

+										
0										
/										
-										
+										
0										
/										
-										
+										
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-										
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0										
/										
-										
+										
0										
/										
-										

Totals += _____ 0= _____ /= _____ -= _____

CODE

Teacher Response Data

- = appropriate response to appropriate child behavior.
- = inappropriate response to appropriate child behavior.
- = appropriate response to inappropriate child behavior.
- = inappropriate response to inappropriate child behavior.

- = positive is defined as:
 - pats
 - smiles
 - statements of approvalappropriate child behavior is defined as
 - task completion, or
 - positive social interaction

- = shouting, slapping, emission of controlling statements or statements of threat by teacher.
appropriate child behavior is defined as:
 - completion of academic tasks, or
 - positive social interactions

- = ignoring, reinforcement of another child or "time out" for defined disruptive behavior

- = attending to child inappropriate behavior (disruptive behavior).

APPENDIX D

In-field Evaluation Form

Code _____

CLASSROOM OBSERVATION FORM

This form is to be used to collect information for project Practice What You Preach.
The information is collected through the following procedures.

1. teacher interview
2. analysis of teacher's plans and children's performance records
3. observation and recording of teacher behavior
4. observation and recording of child social behavior
5. observation and recording of child academic behavior

ALL INFORMATION IS TO BE HELD CONFIDENTIAL

A. BEHAVIORAL OBJECTIVES

1. What type of lesson plan does the teacher use?

Weekly _____
Daily _____
Hourly _____
Minute _____

Specific sets of objectives for each child _____
No lesson plans _____

2. Do objectives follow the Mager format? Yes No
3. If no, do they follow a format which does
include behavior? Yes No

B. RESOURCES

1. Do you have a SEIMC library card? Yes No
2. Do you have library resources for exceptional
children in addition to SEIMC? Yes No
3. If 2 is yes, list

4. Additional comments

C.

CONTINGENCY MANAGEMENT

1. Is the class arranged as a totally contingency managed environment? Yes No

2. If 1 = No, are there observable components of contingency managed system? Yes No

3. If 1 or 2 is yes, check each of the observable components

Physical Environment

- a. separate task and reinforcement areas
- b. task and reinforcement areas combined in the classroom
- c. time-out area adjacent to classroom
- d. central work table for students' daily assignments

Additional Personnel

- a. paid aide
- b. volunteer aide (adult)
- c. student aide
 - i member of class
 - ii member of another class
- d. another teacher

Reinforcement System

- a. reinforcement menu
- b. tokens
(specify type _____)

Types of Reinforcers

- a. highly preferred academic tasks _____
- b. privileges (free time, time away from the classroom, drinks, bathroom privileges, leadership roles — including peer tutoring, etc.) _____
- c. non-academic tasks or activities (games, puzzles, etc.) _____
- d. consumable or nonconsumable tangible reinforcers (candy, toys, games, puzzles, clothing, etc.) _____
- e. additional reinforcers _____
(specify) _____

Instructional System

- a. individual daily assignments for each child _____
- b. task cards or work folders _____
- c. individual child tutoring by teacher _____
- d. contingent sequencing of academic tasks for children (least-to-most preferred) _____
- e. other (specify) _____

Contingency Management Procedures

- a. observable classroom management rules (written on blackboard written statements for each child, vocal statement by T in presence of observer) _____
- b. contingent disbursement of tokens by T or other _____
- c. immediate correction of incorrect child responses on academic tasks _____
- d. specified token exchange periods _____
- e. observable group behavioral control procedures (use of timer to obtain free time, etc.) _____
- f. other (specify) _____

4. Does the teacher serve on a curriculum selection committee? Yes No

5. Has the classroom teacher been responsible for the purchase of new instructional materials in her own class or school? Yes No

(Specify) _____

6. If yes, list evaluation criteria for materials selection.

D. INDIVIDUAL BEHAVIOR CHANGE PROJECTS

1. Are individual projects integrated into total CMC? _____
2. If no CMC, does T execute individual behavior change projects? _____
3. Does the teacher keep records of individual behavior change projects? _____
4. If yes, check observable components
 - a. written target behavior _____
 - b. graph of project _____
 - c. baseline data collected _____
 - d. statement of direction of behavior change _____
 - e. written intervention procedure _____
(specify) _____
 - f. copy of sample project available to observer (attach to report if available) _____
 - g. other managers (specify) _____

5. How are results of individual behavior change projects used?
 - a. teachers own use _____
 - b. reported to principal or other administrative personnel _____
 - c. reported to parents or guardian _____
 - d. reported to other agencies or professionals, e.g. welfare, psychologists _____
 - e. transmitted to other teachers _____
 - f. other uses (specify) _____

E.

EDUCATIONAL ASSESSMENT

1. List the assessment devices which the teacher has arranged to be administered to each child. Code (T) for teacher administered or (O) if administered by other school personnel

a. _____
 b. _____
 c. _____
 d. _____
 e. _____
 f. _____

2. Check level of reading diagnostic information available for most (51%) children

a. no information
 b. group achievement tests
 c. diagnostic reading test (specify title) _____
 d. teacher made diagnostic reading tests (specify datum, e.g. words per minute, errors per minute, etc.)
 e. other related tests (specify _____)

3. Check level of arithmetic diagnostic information as in 2.

a. no information
 b. group achievement tests
 c. diagnostic arithmetic tests
 d. teacher made arithmetic diagnostic tests (specify datum, e.g. basic level of skill problems per minute, errors per minute, etc.) _____

e. related tests (specify _____)

4. Does the teacher have a written, up-to-date summary of each child's level in reading and arithmetic skills based on information listed in 2 and 3 above. (up-to-date = 1 month or less)

F.

EDUCATIONAL PROGRAMMING

- | | |
|--|-----------|
| 1. Are samples of child performance data available to project staff? | Yes No |
|--|-----------|
2. If yes, observer will select a child at random and collect a minimum of 20 days of daily work in all content areas on that child. From these written records, and consultation with the teacher, the observer will list
 - a. each skill level completed in each content area
 - b. range of % correct on total days records
 - c. % of days S performs at 90% correct or better in each content area
 3. The observer will select a child at random (but not the child listed in 2 above) and observe the child during a reading or math period each day. The child's level of performance will be recorded, and these data will be listed
 - a. words/problems per minute
 - b. general level of materials, e.g. name of test (give series, grade level, 6-2 etc.)
 - c. errors per minute
 - d. type of error (inability to borrow, etc.)
 - e. % correct (words or problems)
 - f. other

Note: If observation conditions do not lend themselves to individual assessment, the observer will conduct an individual assessment session with the child
 4. List the daily schedule for each child (if an individualized program is in operation), or for the class.

G.

EVALUATION OF INSTRUCTIONAL MATERIALS

1. List instructional materials (textbooks, workbooks, games, supplemental materials) which T has selected since Sept. 1, 1971.
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.

2. Have materials listed in I above been evaluated on Descriptive Analysis Guide or equivalent evaluation form?

Yes No

3. What additional rationale underly the selection of specific materials? (List teachers stated rationale)

H.

PARENT CONFERENCING

1. Does T hold conferences with parents to list positive attributes of the child?

Yes No

2. Does T send copies of good academic work or good social behavior reports home with her children?

— —

3. Does T use behavior change graphs to document her activities to parents?

— —

4. Does T use diagnostic and educational programming materials to document children's performance to their parents?

— —

5. Does T refer pupils or parents to other agencies for professional assistance?

— —

6. Do T and parents cooperatively execute child behavior change projects?

— —

7. Attach documentation for questions 1-6 here.

I.

TEACHER RESPONSE DATA

1. Attach teacher observation data sheets here.

J.

CHILD PERFORMANCE DATA

1. Attach child performance data here.

Behavior Modification Is

not...

James W. Tawney
Deborah M. Middleton
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■ Behavior modification has received considerable attention in special education. Vigorous attempts have been made to teach behavior modification techniques to teachers through demonstrations, workshops, and newly introduced courses in undergraduate and graduate training programs. Although these activities have enabled many teachers to utilize basic behavior modification techniques in their classrooms, it has rarely been possible to provide extensive supervision to insure that the technology is implemented in a precise and efficient manner. Consequently, teachers have labeled practices behavior modification which are not, they have made minor procedural errors which decrease the effectiveness of their efforts, and they may not implement their techniques because of the misconceptions they hold.

Behavior modification techniques have been presented to classroom teachers from a variety of perspectives. Lindsley (1971), for example, has described a precision teaching environment which focuses on the careful arrangement of antecedent and subsequent stimulus events. Homme (1969) has developed a contingency contracting system which structures a learner's activities so that highly preferred reinforcing events are available contingent upon completion of less preferred events. Token economies have been described by several authors; Neisworth, Deno, and Jenkins' (1969) text represents a practical approach to the arrangement of a token economy classroom environment.

These approaches involve different intervention strategies. However, they represent a common set of principles and requisite teacher behaviors. The principle that behaviors which are followed immediately by positive reinforcing events will increase in frequency underlies these approaches. Teachers who use behavior modification techniques are taught to specify behaviors in observable terms, to identify events which are highly reinforcing to their students, and to arrange their environment so that positive consequences can immediately and consistently follow appropriate behaviors.

Teachers are taught to deliver positive consequences for appropriate behaviors and to ignore (extinguish) inappropriate behaviors. They are encouraged to break students' academic assignments into small tasks to increase the probability that success will occur. Through these practices, it is possible to arrange highly individualized, highly reinforcing environments. When teachers try to implement these techniques but are not completely successful, the reason is often found in minor procedural errors or in certain misconceptions. By helping teachers identify some common misconceptions and by suggesting to them some strategies regarding behavior modification techniques, they can utilize behavior modification more effectively.

Certain persistent difficulties have been pinpointed based on the observations of teachers who had received instruction in behavior modification and who were attempting to implement this information in their classrooms. These problem areas are common to student teachers in their first "classroom" experience as well as to experienced teachers. The following illustrative examples describe what behavior modification is *not*, and suggest strategies to increase the effectiveness of the classroom teacher.

Behavior Modification Is not...

... noncontingent

Problem: The teacher dispenses reinforcement long after the behavior occurs.

Example: Irving brings his paper to the teacher's desk for correction. The teacher marks the paper as correct and says "OK" in an unenthusiastic tone. Irving goes back to his seat while teacher walks to the board to record 5 points by his name.

Strategy: Reinforce immediately!

1. Go to Irving when he signals that his paper is completed.
2. Reinforce enthusiastically while you dispense a token, mark, "happy face," or whatever.
3. Allow Irving, or a peer, to dispense his own reinforcement (assuming the class is honest).

not...

... M & M's for everyone

Problem: The teacher assumes one type of reinforcer works for everyone.

Example: The teacher distributes M&M's to each student who completes an assignment.

Strategy:

1. Make a variety of reinforcers available to the children, and change the selection frequently.
2. Observe each child to determine the things he prefers to do, and use those activities as backup reinforcers in the token economy.
3. Ask the child to list the items or activities he prefers to work for.
4. If the child is unable to communicate, ask his parents for a list of activities he prefers.

not...

... punishment

Problem: The teacher uses the term behavior modification indiscriminately.

Example: The principal walks in while the teacher is spanking Irving for hitting Amazing Grace. The teacher says, "I'm modifying Irving's behavior."

Strategy: The teacher may or may not be modifying behavior, of course, but a major attribute of behavior modification is its emphasis on the *positive*. Look for appropriate behaviors and positively reinforce those. Behavior modification generally refers to the presentation of positive consequences for appropriate behaviors. If you reinforce Irving for instances of on task behavior and he engages in that behavior more frequently, you have reduced the likelihood that he will engage in inappropriate (hitting) behavior, since hitting is incompatible with on task behavior.

not...

... expensive

Problem: The teacher assumes that she must offer candies, trinkets, or toys as reinforcers.

Example: The teacher never implements a reinforcement system because her environment does not contain the necessary dollars for the expensive reinforcers she thinks she must buy.

Strategy:

1. Look for free or inexpensive items which are available in your community. Some teachers have found that merchants will donate items which can be used as reinforcers.
2. Use highly preferred activities as reinforcing events. Painting, free time, and the opportunity to use classroom equipment such as a Language Master, tape recorder, or record player are examples of activities which children may find reinforcing.
3. Structure your classroom around privileges. Trips to the bathroom or water fountain, an opportunity to be classroom monitor, wastebasket helper, or lunch leader are privileges which children can work for. The use of such privileges may be quite effective with children from affluent environments, where parents lavish toys on them.

not...

... inconsistent

Problem: The teacher sets up a program but does not follow a correct response with a reinforcer every time that reinforcement is scheduled to occur.

Example: The teacher establishes a "rule" that all students who are quiet during a 10 minute work period will receive 2 additional minutes of recess time. Irving talks out, but is allowed his 2 minutes.

Strategy:

1. Do what you say you will do! Stick to your rules!
2. You may find it helpful to develop a checklist which you can attach to a clipboard or to your desk.
3. Check (✓) instances of behavior which are to be reinforced, then mark (x) when you have dispensed the reinforcement. This will serve as a prompt to increase your consistent behavior.

not...

... partial change of a teacher's behavior

Problem: The teacher changes one of her behaviors, but does not attend to other behavior which equally affects children.

Example: The teacher is informed that she gives many negative comments when children behave inappropriately, e.g., "Irving, sit down," "Stop talking, Amazing Grace." She then attempts to make positive comments for appropriate behavior. When she is observed at a later date, a high rate of positive comments for appropriate behavior is noted. However, it is also noted that her high rate of negative comments has not decelerated.

Strategy: Pay careful attention to what you do!

1. Ask another teacher to record your behavior when she has a free period (and return the favor for her).
2. If observation reveals that you really haven't attacked the problem, you might purchase an inexpensive wrist counter and use this to count instances of inappropriate behavior. If you can find a teacher to record your behavior on occasion, you will have reached your goal when your record matches hers.

not...

...restricted to the deceleration of inappropriate behaviors

Problem: The teacher tends to focus on the elimination of inappropriate child behaviors rather than on the acceleration of desirable behaviors.

Example: The teacher develops an individual program to extinguish Irving's kicking behavior by timing him out. Then she develops a program to decelerate his hitting behavior with the same procedure.

Strategy:

1. Observe and list Irving's desirable or appropriate behaviors. Look hard, you are sure to find some.
2. Build your program around the presentation of positive consequences for good behaviors.
3. Reinforce Irving when he is playing cooperatively with other children.

not...

... a dependency producing technology

Problem: The teacher decides to discontinue behavior modification techniques in her classroom "because children come to expect a tangible payoff for their work."

Example: The teacher dispenses a set amount of candy for a specified amount of work. She does not change her expectations or vary reinforcers. After a period of time the amount of work fails to increase in quantity and quality. This common misconception reflects a lack of understanding of the steps required to shape a behavior, to pair different types of reinforcers, and to fade out reinforcers.

Strategy: An ultimate goal of any behavior modification project is to reach a point where natural consequences will maintain a behavior. To arrive at that goal it may be necessary to program a sequence of events in the following manner:

1. Follow each behavior with an immediate primary reinforcer.
2. Pair primary and social reinforcers.
3. Provide an immediate, tangible reinforcer which may be paired with social reinforcement and which may be traded for an array of highly desired backup reinforcers.
4. Fade out the tangible reinforcers: (a) increase the amount of behavior (work requirements) necessary to obtain backup reinforcers, and (b) dispense reinforcers on a more infrequent and more uncertain schedule. When these steps have been completed, the behavior should be maintained at a steady rate without continued intervention.

not...

... undocumented testimony

Problem: The teacher fails to document the consequence of her intervention.

Example: The teacher says, "I think my project to accelerate Irving's on task behavior is working." Her principal says, "He is as rotten as he always was," and she is unable to document Irving's change in behavior.

Strategy: Keep graphs of your projects. A loose leaf notebook of a standard size may be a useful device for keeping records of individual social behavior change projects. Constructing and keeping simple graphs is less time consuming than most teachers think.

not...

... a one shot endeavor

Problem: The teacher successfully completes an individual project, but observes that her class still does not run as smoothly as she would like. She concludes her efforts have not been effective.

Example: The teacher successfully accelerates Irving's on task behavior by ignoring his off task behavior and simultaneously reinforcing Amazing Grace for on task behavior. She then immediately reinforces Irving when he imitates Amazing Grace by engaging in on task behavior. Despite all this, Irving still engages in name calling.

Strategy: Be prepared to implement a variety of projects. Irving is obviously ready for a new project to decelerate name calling.

1. His teacher may reinforce him and his classmates for their positive comments to each other.
2. When that project is completed, there is likely to be something else to work on.

not...

... a teacher dominated activity

Problem: The teacher maintains all student records and controls all reinforcers.

Example: The teacher contracts with Irving. She specifies how much work he is to do for his reinforcers, but does not allow him a voice in the decision making process. She ignores his comments, such as, "I can do more work than that for 3 minutes of time in the activity area."

Strategy: Allow students to record their own behavior. Irving's on task behavior may accelerate at a faster rate if he can see the daily increase in "appropriate" behavior. The opportunity to arrange his own consequences should further illustrate the functional relationship between appropriate responses and subsequent positive consequences.

not...

... always what you think you're doing

Problem: The teacher identifies one target behavior and inadvertently reinforces another.

Example: The teacher decides to reinforce Irving for working quietly. She is momentarily distracted, however, and says, "Good, Irving," just as Irving begins whispering to Amazing Grace. The teacher has reinforced a behavior that she really wanted to extinguish.

Strategy: Reinforce immediately!

1. Observe carefully before you reinforce a behavior.
2. Ask another teacher to observe you for a short period to see if you do what you think you do.

When a child is engaging in appropriate behavior simultaneously, e.g. Irving is quiet but is poking Amazing Grace with his pencil, it is especially critical that the inappropriate behavior not be reinforced. You may have to redefine your target behavior, e.g. on task equals quiet work, hands on desk.

not...

... restricted to one type of classroom environment

Problem: The teacher's classroom techniques seem restricted to one type of classroom setting.

Example: The teacher observes a contingency managed, self-contained class of children who exhibit high rates of disruptive behavior and who function at a low level of academic competence. She determines that, although the techniques seem to be working in this class, the techniques probably would not work in her team taught class.

Strategy: Analyze your teaching environment to determine what unique strategies you may have to employ.

1. If you teach in a situation where you have different students each hour, you may have to coordinate an individual behavior change project with each of a student's teachers.
2. If you team teach in a somewhat open classroom environment, you may have to coordinate only with your teammates. It is important that each teacher have the same definition of a target behavior, and that each teacher dispenses the same reinforcement, e.g., "Good, you're working quietly, Irving. You get one token."

not...

... restricted to social behavior change

Problem: The teacher assumes behavior modification is applicable only to social behavior problems in the classroom.

Example: The teacher has appropriately modified much of the acting out behavior of children. She observes that while the children are better behaved, in many instances academic achievement is below expectancy.

Strategy: Use reinforcement to increase academic achievement. Reinforcing on task behavior can increase the amount of time the children attend to studying. Or, children can earn reinforcers by correctly completing individually specified amounts of work (math problems, reading pages, study questions). Both rate and level of output can be increased. Individual academic assessment is a prerequisite here.

not...

... a highly complex procedure

Problem: A teacher learns to conduct individual behavior modification projects in a "laboratory setting." She does not implement any of these skills in her own classroom, however.

Example: The teacher's principal says, "Why are you sending Irving to my office because he disrupts your class? I thought you learned some techniques to change that behavior." The teacher replies that it's very easy to do a simple project but that she "just doesn't have time to do it with an entire class of kids."

Strategy:

1. List appropriate behavior change projects (target behaviors).
2. Develop a simple method to graph behaviors.
3. Collect baseline data.
4. Select appropriate consequences, as described earlier.
5. Implement your program.
6. Graph your results.
7. Modify the program as needed.

Behavior Modification Is...

Behavior modification has proven to be an efficient technology for improving children's social and academic behavior. Consequently, many teachers have been taught behavior modification principles and techniques. The strategies and viewpoints described here are intended to modify misconceptions or procedural errors which often occur as teachers attempt to carry out the techniques which they have learned. Hopefully, these suggestions will serve as prompts for teachers to modify their own behavior and to improve their classroom effectiveness.

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